



EnergyWorks KC  
FINAL REPORT TO THE  
U.S. DEPARTMENT OF ENERGY  
Grant No. EE-0003564

Submitted by

Kansas City, Missouri  
Office of Environmental Quality

June 30, 2014



**DISCLAIMER:**

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warrant, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.



## Table of Contents

REPORT ELEMENT	PAGE
Recitals, Project Objectives, Measurable Outcomes, and Background	4
Executive Summary	5
Overall Accomplishments and Specific Achievements	6
Final Technical Summary Report	9
Challenges	43-44
Lessons Learned	44
Program Sustainability Plans	44-47
ATTACHMENTS	
Attachment A – MEC Final Report	48-71
Attachment B – MARC Final Report	71-461
a. Green Impact Zone	212-229
b. Green Jobs Pipeline	230-272
c. Education, Workforce Development – Green Jobs Pipeline and Worker Training	92-427
d. PACE Program Study	428-460
Attachment C – BTG Final Report	461-487
APPENDICES	
Appendix 1 – Detail of Program Activity	488-495
Appendix 2 – Leveraged Dollars	496-499
Appendix 3 – Marketing	500-503
Appendix 4 – Success Stories	504-508
Appendix 5 – KC Star Article – Workforce Development	509-515
Appendix 6 – Greenability Magazine – Program Launch	516-520
Appendix 7 – ReClaim KC	521-522
Appendix 8 – HEAL	523
Appendix 9 – Miscellaneous Photos	524-534

## Final Report

**Project Title:** "EnergyWorks KC"  
**Covering Period:** July 1, 2010 to March 31, 2014  
**Date of Report:** June 30, 2014  
**Recipient:** City of Kansas City, Missouri  
**Award Number:** DE-EE0003564  
**Working Partners:** Metropolitan Energy Center, Mid-America Regional Council, Bridging The Gap, Neighborhood Housing Services of KC, The Green Impact Zone, Blue Hills Community Services, Green Works in Kansas City

**Cost-Sharing Partners:** N/A

<b>Contacts:</b>	Dennis Murphey Phone: 816-513-3459 Fax: 816-513-3471 Email: <a href="mailto:dennis.murphey@kcmo.org">dennis.murphey@kcmo.org</a>	Gerald Shechter Phone: 816-513-3401 Fax: 816-513-3471 Email: <a href="mailto:gerald.shechter@kcmo.org">gerald.shechter@kcmo.org</a>
------------------	---	--

**KCMO Project Team:** Jenifer Degen, Contracts Manager  
Denise Dillard, Administrative Assistant  
Sally McInerney, Sr. Accountant  
Danielle Wesolowski, Marketing Coordinator

**DOE Project Team:** DOE Field Contracting Officer - Sara Wilson  
DOE Field Project Officer - Steve Dunn  
DOE Account Manager - Jonathan Cohen

**Project Objective:** The EnergyWorks KC regional partnership will transform the energy retrofit market in the Kansas City metropolitan region through anticipated policy changes and development of programs, capacity, and tools for energy efficiency retrofits. The program expects to achieve energy reductions of 86 million kWh/year in electricity, 228 million cubic feet/year in natural gas, and 24 million gallons/year in water use, and associated utility bills, resulting in greenhouse gas reduction of 92,000 metric tons/year.

### Measureable outcomes:

- Retrofits of 2,000 residential, commercial, industrial, institutional, and public buildings during the project period and another 400 buildings in the two years after the grant project period.
- Workforce development and creation/retention of an average of at least 180 jobs. Leveraging Energy Efficiency and Conservation Block Grant (EECBG) funds to generate approximately \$200 million aimed at Kansas City neighborhoods.

**Background:** In July, 2008, Kansas City adopted its first Climate Protection Plan that outlined the policy guidelines for City staff to address a range of issues related to energy efficiency and renewable energy in the Kansas City region. Among the action measures adopted by the Mayor and City Council, was to enhance and expand our energy efficiency (home weatherization) program by developing a loan based initiative to complement the existing grant programs. Accordingly, the central component of the EnergyWorks KC Initiative is the development of a market-based approach to achieving energy efficiency improvements in residential, commercial, industrial and institutional buildings.



## EXECUTIVE SUMMARY

EnergyWorks KC (EWKC) created an innovative regional partnership to transform the energy retrofit market in the Kansas City metropolitan region. The initiative was started in Kansas City, Missouri due to its aggressive Climate Protection Plan, which identified specific greenhouse gas emission reduction goals to be achieved by 2020, and its diverse set of neighborhoods, where place-based strategies for revitalization are already underway. The partnership included the area planning agency Mid-America Regional Council, local non-profits Metropolitan Energy Center, Bridging The Gap, and Blue Hills Community Services, local investor owned utilities KCP&L and Missouri Gas Energy, and six (7) targeted neighborhoods.

Regional energy efficiency efforts led by the Mid-America Regional Council (MARC) achieved the goals established at the outset of the project. Significant achievements were accomplished in areas related to policy development, education and leadership development, demonstration projects and workforce development. In each area, projects were demonstrated to be economically feasible, technically viable and publicly acceptable.

In the policy arena, MARC facilitated two initiatives. The first initiative led to the adoption and implementation of new energy efficiency codes (IECC 2012) in cities which represent over 50 percent of the region's population. New codes will enable new residences to be, on average, 20 percent more efficient than conventional homes built to the IECC 2006 standards previously in force in Kansas City. The second major policy initiative focused on the Property Assessed Clean Energy (PACE) concept. MARC undertook a research study to determine the efficacy of implementing a PACE program and forming a local PACE board in the Kansas City region. Ultimately, the study did not lead to a local board. However, Kansas City became a member of the statewide Missouri Clean Energy District which had already been established to facilitate PACE throughout the State of Missouri.

To replicate activities in Kansas City, Mo., MARC funded six high impact demonstration projects. The revolving loan fund in the Unified Government of Kansas City, Kansas and Wyandotte County, for example, built upon its initial set of loans, funded by the State of Kansas, to achieve improvements in 39 homes, many of which are located in disadvantaged communities. Grants to other two other local government agencies and three non-profits helped to build the region's capacity and support for future energy efficiency investments.

MARC's efforts notably sought to link workforce development with other energy efficiency investments. Strong partnerships with the three area community colleges – Johnson County Community College, Metropolitan Community College, and Kansas City Kansas Community College, a major university – Central Missouri State, and two key non-profits – Full Employment Council and Metropolitan Energy Center, proved instrumental in creating and delivering workforce development and job training that exceeded initial goals and expectations. Subgrant awards to six high-impact green workforce training and education projects resulted in 336 individuals receiving training resulting in 217 individuals being placed in full time employment, and 129 businesses being assisted in hiring for green-related jobs. The number of individuals trained exceeded initial projections by 40 percent.

Public education efforts carried out by MARC extended and reinforced outreach efforts implemented by other project partners. Outreach through regional media outlets, social marketing, a new website – Beyond the Bulb, and direct mobile outreach connected MARC with tens of thousands of area residents and businesses.

Several conclusions resulted from collaborative, regional-scale initiatives carried out during the course of the effort. First, an integrative approach linking energy efficiency with other issues such as workforce development, water use efficiency and deconstruction showed impressive synergies, enhancing the overall project impact. It also created community interest in related efforts to reduce soft costs for solar deployment, while expanding the scope of conversations about regional strategies for sustainable development and urban design.

Second, a regional approach added substantial value to the overall effort. While much of the energy improvement investments took place within Kansas City, Mo., there was substantial interest in and support for project goals at the regional scale. A committee, called the Regional Energy Efficiency and Conservation Strategy (REECS) committee, composed of a dozen local cities and counties and other regional stakeholders, created new points of leadership, stronger partnerships, greater support and understanding about project goals, and expanded regional impacts through investments in efforts with a broader metropolitan focus.

Finally, behavior change at the individual, business and community levels is fundamental to any set of environmental or sustainability initiatives. In EnergyWorks KC (EWKC), clear links between regional and local education efforts created tangible outcomes supportive of longer term market transformation for energy efficiency. EnergyWorks KC (EWKC) brought together a consortium of neighborhood leaders in the Green Impact Zone and five other targeted neighborhoods across the Kansas City metropolitan area to implement a neighborhood focus for energy efficiency improvements for residential, commercial, industrial, institutional and public buildings.

### **Partners and Roles**

To implement EWKC, the City of Kansas City, MO, pursuant to EECBG/DOE Grant No. EE-0003564, contracted with several well established local non-profit agencies to carry out the core activities defined in the grant application and in achieving targets detailed in the Statement of Program Objectives (SOP).

#### **Core Grant Activities – Metropolitan Energy Center**

The City contracted with the Metropolitan Energy Center (MEC) to provide a consumer friendly energy services center for building owners. Building on the existing relationships with energy analysts and contractors maintained by the MEC in administering the regional Home Performance with ENERGY STAR® (HPwES) program for the local utility companies, the City contracted to expand and enhance existing support for energy analysts and contractors to complete over 2,000 energy retrofits in the Kansas City metropolitan area. The program, in order to better address the potential for market transformation in favor of energy efficiency, focused on both the demand and supply sides of the energy efficiency market. See Appendix A for a detailed final report by MEC.

The Metropolitan Energy Center (MEC) was contracted by the City of Kansas City to provide a single point of contact for delivery of energy efficiency retrofit services, including:

- Neighborhood and business outreach in conjunction with the general marketing program
- Customer program applications
- Qualified list of BPI-certified energy analysts and contractors
- Information on locally available energy efficiency financing resources
- Resources for obtaining energy efficiency upgrades
- Quality control and assurance inspections
- Implementing program marketing and service delivery in targeted neighborhoods and citywide
- Coordination and implementation of the EnergyWorks KC rebate program

- Coordination with NHS in the lending process

#### Core Grant Activities – Mid-America Regional Council

The City contracted with the Mid-America Regional Council (MARC), which serves as the Council of Governments and the Metropolitan Planning Organization for the bi-state Kansas City region, to address regional energy policy and workforce development issues, regional education and outreach, and creation of a replicable EWKC model throughout the region. See Appendix B for a detailed final report by MARC.

#### Core Grant Activities - Lending

Neighborhood Housing Services (NHS), a 40-year old, nonprofit affiliated with, and a charter member of, the national intermediary organization called NeighborWorks® America which is funded directly from the US Congress. NHS was established to be a community-based lending and community development corporation. Under contract with the City, NHS manages and implements the Revolving Loan Fund and the Interest Rate Buy Down programs. The City contracted with NHS to provide full service lending support for EWKC customers and to coordinate the lending process with the marketing program and with the analysis and improvements process managed by MEC.

	<b>EWKC</b>	<b>HEAL</b>	<b>TOTALS</b>
Loan Applications	251	19	270
Loans Closed	130	18	148
Loan Amount (\$)	\$1,986,562	\$195,532	\$2,182,094
Interest Rate Buy-down (\$)	\$179,913.54	\$15,991.12	\$195,904.66

#### Core Grant Activities – Bridging The Gap - Energy-Water Nexus

Bridging The Gap (BTG) was selected pursuant to a city wide RFP process to implement a water conservation initiative. BTG created the WaterWorks! Program and sub-contracted with Green Works of KC to assist in educating residents of Kansas City, Missouri on the importance of water conservation to increase awareness of the water-energy nexus, and to help them reduce their water usage and lower their water and utility bills. Green Works of KC brought to the table a focus on high school students interested in environmental and sustainability activities. Designed with a focus on maximizing gallons of water saved per dollar spent, BTG structured its WaterWorks! Program around five core elements: professionally installed water efficiency ecokits, Do-It-Yourself water efficiency ecokits, rebates for purchase of WaterSense rated toilets, downspout disconnects, rain barrel installations, and development of rain gardens in each of six city council districts. See Appendix C for a detailed final report by BTG.

#### Special Project – Blue Hills Community Services - Small Business Incubator

Blue Hills Community Services (BHCS) was designated in the grant application as a special, sole-source procurement project to renovate and repurpose an existing 14,168 square foot building on a major commercial corridor in Kansas City, Missouri. The renovation includes a green career development incubator, neighborhood meeting space, integration of comprehensive green strategies, and the offices for BHCS. The project is a self-certified LEED Gold development. BHCS, relying on its skills as an established affordable housing developer, assembled funds to develop the concept, acquire the property, complete an acceptable design, implement and complete renovation to LEED-Gold standards, and market the facility and provide support services for start-up small businesses. The multi-use facility provides administrative offices for BHCS as well as meeting facilities for neighborhood organizations and groups. BHCS also uses the facility for education and training classes. BHCS assembled over \$3.2 million for this redevelopment from three main sources and others. The three main sources of funds were (1) Local Initiatives Support Corporation (LISC) for acquisition and soft costs, (2) City of Kansas City, MO from

Community Development Block Grants over two years, for acquisition and soft costs, and EWKC for renovation of the facility. See Appendix D for a detailed final report by BHCS.

#### Neighborhood Partners

EWKC was designed as an innovative partnership to transform the energy efficiency market, in part, because the grant recipient included representatives of a range of neighborhoods in planning for the grant application and in program implementation. The primary neighborhoods participating in the planning and implementation of EWKC are: the Green Impact Zone – itself an area comprised of five neighborhoods, Winnwood-Sunnybrook, Central Industrial District, Washington Wheatley, Westside, Eastwood Hills, and Ruskin Area. In these neighborhoods, an integrated set of services (marketing, energy analyses, financing and energy efficiency improvements) were offered through the processes established by the Metropolitan Energy Center. This set of integrated services was, with DOE approval, extended citywide.

#### Utilities

EWKC was designed as an innovative partnership to transform the energy efficiency market, in part, because the grant recipient included the two major utilities, KCP&L and Missouri Gas Energy, in planning for the grant application and in program implementation. The utilities were already engaged in providing rebates for energy efficiency improvements through the Home Performance with ENERGY STAR® program (HPwES) which was operated by the MEC. EWKC financing was designed to integrate with HPwES. As described in this report, mid-grant changes were approved that allowed EWKC to offer rebates. The utilities were involved in planning for that program element as were representatives of the contractor community.

#### Contractors

Although contractors were not directly involved in planning for the grant application, meetings were hosted by MEC to present the program to the various energy analysts and contractors in the HPwES program and to obtain their input on program design. With mid-grant program changes, contractor representatives were involved in planning and design of the program changes.

#### Marketing

Marketing was undertaken on three levels. The first level involved full time program staff to coordinate and focus all marketing activities.

1. The Marketing Coordinator developed the overall marketing plan and worked with each of the partner agencies to develop the core marketing concepts, the logo, program colors, acquisition of marketing collateral and events.
2. The City contracted with Ascend Integrated Media, a professional marketing and advertising firm. Ascend assisted the City in development of flyers and handouts, videos (available on YouTube at: <http://www.youtube.com/user/EnergyWorksKC> ), securing radio and television interviews, developing and placing ads in a wide range of newspapers and magazines, etc. All marketing was made available in English and Spanish.
3. The City contracted with KMBC TV-9, the local ABC affiliate. KMBC developed and placed online ads across the region in all social media venues, developed and implemented an online texting campaign, and, in conjunction with the Metropolitan Energy Center, implemented a “Home Energy Make-Over Contest”. The contest was texting based in response to online ads. Respondents names were placed into a blind drawing resulting in four winners. Three of the winners received gift boxes of varying values. The grand prize winner received a home energy make-over that was financed 100% with donated funds and services totaling over \$8,700. The homeowner realized a projected average annual energy savings of 39.5%.

## **OVERALL ACCOMPLISHMENTS**

With EWKC support, 4,326 residential and commercial energy analyses were conducted in the Kansas City metropolitan area, resulting in 2,819 completed energy efficiency improvements, exceeding the proposed project goal of 2,000 improvements. The energy efficiency improvements implemented on these buildings produced an overall reduction on energy use for residential structures by 18.5%, and reductions on energy use for commercial structures of 25.1%. EWKC contributed \$3,659,690 in direct project investments in these buildings, leveraging \$6,877,390 from building owners and other sources, for a total investment of \$10,537,080. Leveraging was achieved, from building owners, at approximately 2 to 1.

### **Quantifiable Targets:**

- (a) improve energy efficiency in 2,000 buildings; achieved 2,819 improvements (141% of target); Save 24,000 gallons of water per year; achieved estimated savings of 65,000 gallons per year (271%);
- (b) Reduce 92,000 metric tons CO<sub>2</sub>-e per year; achieved reduction of 70,792 metric tons CO<sub>2</sub>-e per year (77%);
- (c) Provide workforce training for 250 persons; achieved training for 336 persons (134%)
- (d) Create or sustain 180 jobs related to energy efficiency; achieved 217 jobs (121%);

## **Specific Achievements**

Project Objectives (SOPO)	Targets	Achieved	Percent Achieved	MT-CO <sub>2</sub> -e Avoided*	MMBtu Saved
(Est Annual Savings)					
Energy Efficiency Upgrades	2,000	2,819	141%		
Jobs Created/Retained	180	217	121%		
Energy/Water Use Reduced					
a. Electricity –kWh/yr	86,000,000	65,203,303	76%	59,818	222,537
b. Natural Gas – cf/yr	228,000,000	166,511,390	73%	9,520	169,860
c. Water – gal/yr	24,000	65,000	271%	1,634	29,150
<b>TOTAL</b>				<b>70,792</b>	<b>421,547</b>

d. Combined MMBtu/yr	526,100	389,314	74.0%
e. Combined CO <sub>2</sub> -e	92,000	70,792	77.0%

\*MT-CO<sub>2</sub>-e - Metric tons of carbon dioxide equivalent of air pollutants avoided

### **PROJECTED AVERAGE ANNUAL ENERGY SAVINGS – Based on energy analyses performed**

Building Type	Number of Improvements	Average Annual Savings
a. Residential	2,703	18.50%
b. Commercial & Other	116	25.10%
c. Combined	2,819	18.50%

## **Range of Activities**

Expenditure of grant funds resulted in the following range of activities . See Appendix 1 for greater detail

- Deconstruction pilot program administered in three projects

- (a) Ivanhoe Neighborhood which spun off a private market joint venture between the Metropolitan Energy Center and KCK Community College called Reclaim KC;
- Development and renovation, to LEED-Gold standard, of a vacant warehouse at 5008 Prospect into a small business incubator by Blue Hills Community Services;
- Energy efficiency improvements to buildings in the region by:
  - Truman Habitat for Humanity - ReStore in Independence,
  - the City of Roeland Park – historic homes,
  - Kansas Interfaith Power & Light - churches,
  - the KCMO Bruch Creek Community Center – HVAC upgrades with controls,
  - Westside Housing Organization – affordable housing and office building,
  - Guadalupe Centers, Inc – social services facilities,
  - Northland Neighborhoods, Inc – 2 focused residential blocks,
  - Bridging The Gap – involvement of home owners and neighbors in self-help,
  - Covenant Memorial Baptist Church,
  - GEM Theater Arts Center,
  - Ivanhoe Neighborhood Center – office building,
  - ReStart – shelter facilities, and
  - Troost Early Learning Center;
- Creation of a revolving loan fund by the Unified Government of Wyandotte County and Kansas City, KS resulting in improvements to 39 homes;
- Job training and placement by:
  - Johnson County Community College – hospitality industry
  - Metropolitan Community College – general market
  - Full Employment Council – general market
  - Central Missouri University – real estate industry
  - Metropolitan Energy Center – energy efficiency industry
- Creation of the MARC website called “Beyond the Bulb”
- HEAL Program Partnership with the Clinton Foundation and the Metropolitan Energy Center to pilot the Home Energy Assistance Loan (HEAL) Program designed, by the Clinton Foundation, to involve the workplace as the central driver in creating demand for energy efficiency improvements among their respective staffs. Pilot programs were started with employees of BNIM, Posty Cards, and the City of Independence resulting in improvements to 47 homes
- Home Energy Make-over Contest with KMBC TV-9 – Contest winner received improvements to their home totaling \$8,783.45 which resulted in 39.4% energy savings for the homeowner based on the post-improvement analysis. All materials and labor were donated by local companies
- First ever Concert for the Climate, held in Kaw Point Park in Kansas City, KS, sponsored by the Heartland Renewable Energy Society featuring local arts, crafts and music and keynote speakers Robert F. Kennedy, Jr. and Bill McKibben.

### **Leveraging of Federal dollars**

Federal legislation targeted leveraging of federal grant dollars by as much as 5 to 1. EWKC activities achieved leveraging of \$99,612,549 against the grant of \$20,000,000 for an achieved leveraging ratio of approximately 4.63 to 1. For greater detail, see Appendix 2.

### **Achievements realized by EWKC have benefited the community.**

Energy efficiency improvements reduced energy use of 2,703 residences by an average of 18.50% and 116 commercial businesses by 25.10%; reduced energy use by 65,203,000 kWh of electricity per year;

16,651,100 Mcf of natural gas per year; and an estimated 65,000 gallons of water per year. Avoids greenhouse gas emissions by an estimated 70,790 metric tons CO<sub>2</sub>-e per year.

Additionally, economic and social impacts as a result of achievement for the City include:

- Reduced energy use in residential, commercial, non-profit, and church buildings;
- Saved money, otherwise spent on utility payments, and increased disposable income;
- Reduced pollution in the form of CO<sub>2</sub> and other air pollutants;
- Created healthier indoor living and working environments;
- Increased sales and revenue for local businesses;
- Created local jobs;
- Created local tax revenue;
- Increased the value of property (extent of increase not yet fully supported by appraisers).

## **TECHNICAL REPORT**

### **Institutional Design and Business Model**

The core business strategy of EWKC's primary retrofit program was:

- Development of the market for energy efficiency improvements in Kansas City through an ambitious marketing and awareness campaign as well as the provision of incentives for energy efficiency improvements
- Development of the private energy auditing and retrofit industry in the Kansas City area to respond to the growing market.
- Creation of a Revolving Loan Fund to provide energy efficiency improvements for the long term

The Metropolitan Energy Center's role within EnergyWorks KC's business strategy consisted of providing a consumer friendly, single point of contact for delivery of energy efficiency retrofit services, including neighborhood and business outreach, customer applications, energy analyses, information on obtaining energy efficiency financing, resources for obtaining energy efficiency upgrades, quality control and quality assurance inspections. As the point of contact, the Metropolitan Energy Center became the central liaison between homeowners, energy efficiency professionals, available lending resources, utility rebate programs (referred to as Home Performance with Energy Star®) and City government. The role required the development (in consultation with the City) of energy efficiency retrofit standards, paper and online application forms and data systems, as well as the creation and organization of a cadre of Customer Service Representatives to engage homeowners, businesses, non-profits, and churches in the targeted neighborhoods and citywide regarding the EWKC program and energy efficiency more generally.

MEC also played a major role both directly and indirectly in developing the workforce for energy efficiency contracting in Kansas City. This was accomplished as a result of a contract between MARC and MEC for MEC, which is the regional BPI trainer, to provide training in support of workforce development activities. The central philosophy of MEC in operating EWKC was twofold. The first part was to work with the existing private sector analysts and contractors, to enhance their respective business models to create long term sustainability in the supply of energy efficiency services. On the other hand, MEC has been among the best local sources of public information and education for energy efficiency and renewable energy in the region since 1982. In providing a source of good, unbiased information, as exemplified by their training facility called Project Living Proof, MEC focused on developing consumer awareness about the value of energy efficiency and about the process and products of the industry. In this way – addressing both contractor

needs and training, and consumer education – MEC addressed both the supply and demand side of the market to make energy efficiency a primary choice in the renovation/upgrade market.

### **Program Design and Customer Experience**

MEC adopted several program design decisions that were pivotal in their impacts on the program:

1. EnergyWorks KC was integrated with the existing Midwest Home Performance with Energy Star® partnership, utilizing the same contractor list and standards in order to maximize incentives, streamline program criteria and create sustainable retrofit capacity while maintaining the relationships already established with the two local utility companies. The MEC, however, did not initially have sufficient software capability for the needs of both programs operated in coordination.
2. The PSD Green Compass/Surveyor software was ultimately adopted to provide an online data management system for submitting energy audits, modeling of home energy usage, and tracking retrofit projects. The software system, which was adapted for use in the national BBNP by DOE, initially had some shortcomings that took a significant amount of time to work out.
3. A cadre of Customer Service Representatives (CSRs), many of whom were residents of the targeted neighborhoods, were trained and assigned to provide community outreach and education in targeted neighborhoods and citywide. The concept was expected to allow for greater intimacy with needs of the respective neighborhoods and greater ability to address those needs quickly. Initial assignments of staff were changed on several occasions to address issues perceived by management. As a result, some activities originally planned, such as whole neighborhood energy efficiency activities did not occur.
4. Customer experience, overall, was very positive. However, there were instances that occurred that resulted in less than positive experiences. Problems occurred with
  - a. Communication between program operators – MEC and NHS – that resulted in delays and, in some instances, customer confusion;
  - b. Program changes resulted in delays and customer confusion until revised marketing collateral was made available;
  - c. High expectations – customers and staff - were not always fulfilled;
  - d. Several contractor exhibited a reluctance to provide customers complete information;

While MARC did not work with the analysts and contractors, they created and carried out a public education campaign specifically designed to address public awareness about the value of energy efficiency improvements, and how to access the market. The combination of the marketing effort coordinated by the City, the outreach efforts of MEC and their focus on both sides of the economic equation, and the regional focus of the MARC component of EWKC, together addressed a range of market transformation issues and potentials. As noted in the MARC report (See Attachment B), MARC undertook a region-wide survey to clarify attitudes toward energy efficiency which helped to modify program design.

### **Effectiveness of Customer Service**

The original program design, as detailed in the grant application, envisioned a contract manager who would work with all analysts and contractors. This proposed program element was never tested because of the re-focus on hiring and training of neighborhood residents. Each person (CSR) hired underwent sales training as well as basic BPI energy analysis training. The ability of those hired to fully implement the skills necessary to perform the identified tasks was variable. Subsequently, staff changes occurred again with some of the staff being assigned internal control (back office) roles such as record keeping, etc. This resulted in fewer staff being available for work in neighborhoods, at church events, etc. Those who did



perform the externally oriented work ultimately proved capable of doing the work. The delays to the program, in addition to financing and economic recession issues, were part of the reason that demand for program services built up over time more slowly than anticipated and that the program ran behind on quarterly projected targets until the final year of the grant.

The proposed financing mechanism originally focused on establishing one or more loan loss reserve accounts with lenders. The City requested proposals three times in the first year and finally was able to come to agreements with two credit unions. In the interim, the City requested, and was granted, a program change from DOE that allowed establishment of a revolving loan fund, an interest rate buy down fund and a system of rebates to complement and extend the HPwES rebates. None of the financing was fully in place at the program launch in 2011. The press conference for the launch event resulted in over 1,100 calls for service. Because financing was not in place, marketing collateral could not be developed that addressed financing and final program procedures could not be set in place. And this, in turn, caused friction between customers, MEC staff and the contractor community. Once this initial tide of response waned, a financing mechanism was put in place, and MEC staff stabilized, a more effective customer service capability emerged.

### **Driving Demand**

The overall EWKC marketing strategy was designed and directed by the City of Kansas City staff with critical participation and input from MEC, MARC, and BTG. The City designed and produced advertising, media, and program literature for a wide variety of markets. MEC's Customer Service Representatives utilized these marketing materials in engaging homeowners, small businesses, non-profits, and churches and presenting the materials at neighborhood and community meetings. In addition, program literature was distributed to residential and commercial energy analysts and improvements contractors to use in speaking with building owners about the program.

MEC played a major role in crafting the structure of rebates and incentives that were made available to property owners through EnergyWorks KC. The rebate structure was adapted in the course of the program, in conjunction with energy efficiency auditors and contractors, as it became clear what worked and what did not work. Over time, the incentives made available increased with a focus on achieving greater impact, i.e., performance incentives. This element, however, created some internal friction in that the HPwES program from the utilities was oriented toward some energy efficiency improvement while EWKC was oriented toward increasing estimated annual energy savings progressively. On occasion, this caused some problems at MEC in making the two programs mesh. Ultimately, the City agreed that MEC staff could view the utility programs with some priority in order to reduce inter-program conflict and maximize the benefits to the consumer.

EWKC drove demand for energy efficiency through an aggressive marketing campaign and through an attractive structure of rebates and incentives for residential and commercial buildings. It is important to note, given the inter-program friction noted above, that EWKC marketed its package of benefits and services while the utilities did no marketing. EWKC marketing focused on EWKC incentives thus adding somewhat to the internal friction at MEC. It is important to note, in development of the EWKC grant program that, although the utilities were planning partners, no one – City, MEC, MARC, or the utilities – discussed marketing from a planning perspective.

The EWKC marketing strategy was designed and directed by City of Kansas City, MO staff with input from the program partners. The City designed and produced advertising, media, and program literature for a wide variety of markets. MEC, MARC, BTG, and Green Impact Zone staff utilized these marketing materials to engage homeowners and business owners and to present the materials at neighborhood and

community and business meetings. In addition, program literature was distributed to residential and commercial energy analysts and improvements contractors to use in speaking with building owners about the benefits of energy efficiency improvements and available EWKC resources.

MEC, and representatives of the contractor community, played a major role in crafting the structure of rebates and incentives that were made available to property owners through EnergyWorks KC. The rebate structure was adapted in the course of the program as it became clear what worked and what did not work for them. See Appendix 3 for a few samples of the marketing collateral. Much of the marketing collateral was forwarded to DOE management staff as it was produced.

Advertising and marketing venues included:

- Radio and TV spots
- Radio interviews
- Billboards
- Public Transportation ads
- Presentations to neighborhood groups
- Presentations to churches and social clubs
- Educational games for kids and their parents
- A wide range of handout toys and materials
- Online ad placements
- Facebook and Twitter
- EWKC partner website information
- New home shows
- Remodeling shows
- A “Concert for the Climate”
- Energy Efficiency Home Makeover contest
- Survey of understanding of area residents of the need for energy efficiency and attitudes toward taking action

### **Workforce Development**

MARC provided for a great deal of workforce development training in support of EWKC, including:

- Organization of workforce development opportunities directly connected to the grant
  - Customer Service Representatives
  - Energy Analysts and Improvements Contractors
- Provision of training under the MARC Green Jobs Pipeline contract
  - Residential and Commercial Energy Analysts
  - Weatherization Installers
  - Deconstruction Contractors and Workers
  - Real Estate Agents and Brokers
  - College students
  - Reclaimed Lumber Processors and Furniture Makers
- Provision of training with funds from other sources
  - Environmental Remediation Workers and Inspectors
  - Hazardous Material Handlers

Organization of workforce development opportunities directly connected to the grant included work with the Full Employment Council and the University of Central Missouri to train Customer Service Representatives (CSRs) from the EWKC targeted neighborhoods in marketing, and in sales and customer service best practices. In addition to basic training for the field, MEC, the designated regional BPI trainer, provided the CSRs with BPI training and ongoing training regarding sales and marketing, the Green Compass/Surveyor and Salesforce software and, as needed, other training related to their roles.

Energy Analysts and Improvements Contractors – MEC provided BPI training, testing and certification, orientation and mentoring programs for new contractors. MEC also provided enhancement programs including Healthy Homes for Energy Practitioners, Lead Renovation, Repair and Painting (RRP), and Section 106 Historical review. MEC also organized continuing education programs for existing contractors in sales and marketing, Green Compass/Surveyor software and modeling, combustion safety, and mold remediation. As part of the MEC/BPI training courses, EWKC paid for training of potential analysts and contractors from low to moderate income neighborhoods.

MARC Green Jobs Pipeline – In addition to its program management and community outreach roles in EWKC, MEC received a separate EWKC Workforce Development grant through the Mid-America Regional Council. With the grant, MEC trained and certified 84 unemployed or underemployed workers, placing 39 workers in jobs relating to the field. In addition, MEC assisted 43 businesses related to the energy efficiency field by training and certification of their employees.

Training under the MARC Green Jobs Pipeline grant included:

- Residential energy auditing
- Weatherization installation
- Reclaimed lumber processing
- Commercial energy auditing
- Deconstruction

With funding from other sources, training was provided in lead abatement, asbestos abatement, hazardous materials handling, lead RRP, OSHA 10-hour construction safety, and forklift certification. The training classes provided an additional pool of employees for participating contractors, opportunities for additional certifications for participating contractors, a broader pool of employees to grow the energy efficiency industry, and additional job opportunities for members of the community.

### **Financing and Incentives**

EWKC core program agencies, MEC, NHS, and MARC, worked closely with the City of KCMO to develop and test a series of financing strategies designed to leverage additional capital investment into energy efficiency improvements in Kansas City buildings, including: a revolving loan fund, including secured and unsecured loan products, loan loss reserves, an interest rate buy-down fund. These products evolved through the course of the program as it became clear what financing strategies were effective for Kansas City given the economic context of 2010-2013. The results will be discussed below under achievements.

The initial financing program approved by DOE for EWKC exclusively included development of loan loss reserve funds. The first public request for proposals resulted in no respondents. The second public proposal process yielded two credit unions willing to discuss establishment of loan loss reserves. The first was a regional credit union; the second was a small credit union focused on the Hispanic community. The third public process yielded two respondents. A national bank proposed an interest rate write down fund exclusively for their current customers. This approach was rejected. The second respondent proposed development of a revolving loan fund (RLF).

Because EWKC had no financing mechanisms in place after 9 months into program operation, the City requested a program change from DOE that was approved. The newly approved approach involved (1) establishing loan loss reserves with the two respondents – Mazuma Credit Union and Guadalupe Centers, Inc./Kansas City Railway Federal Credit Union, (2) developing a revolving loan fund, and (3) developing an interest rate buy-down fund. The RLF and the IRBD funds were negotiated with Neighborhood Housing Services of KC (NHS) which was the second respondent in the third proposal request process.

Ultimately, Neighborhood Housing Services (NHS) was selected as the primary lender for the EWKC loan program and later as the lender for the Home Energy Affordability Loan Program (HEAL). MEC assisted the City in interviewing potential lenders and selecting NHS for this role. MEC staff also participated on an ongoing basis in processing EWKC loan applications, as well as sitting on the EWKC loan committee, which made lending decisions, and coordinated with NHS staff to ensure communication between homeowners, energy auditors and retrofit contractors regarding energy retrofit work.

As the multi-faceted lending program was being developed, EWKC did not offer rebates. After one year of operation, which resulted in few loans, the City met with MEC and representatives of the contracting industry to discuss possible program modification. The discussion led to a program modification request to DOE to allow re-programming of funds to support rebates that would complement the HPwES rebate program from the electric and natural gas utility companies. DOE approved this request. With the availability of EWKC rebates, which were developed as performance based incentives, loan requests increased through MEC and NHS.

No loan activity occurred at the credit unions. EWKC Marketing staff met with each lender and offered to assist in their marketing and/or to provide the marketing tools for them to use. After one year of inactivity, the City discussed with DOE the potential of de-funding the two credit unions for failure to perform. With DOE program staff concurrence, both contracts were withdrawn and the funds returned to the City. Return of the funds yielded approximately \$1,760 in accrued interest which was reported to DOE in monthly reports. According to EECBG Program Notice 09-002D, effective October 17, 2012, page 6, close out of financing programs, which includes ending or reducing funding for financing programs, provides that if funds are not used for an eligible purpose, the funds must be returned to the Federal government. The City agreed to show the funds as an addition to the budget approved by DOE and to use that amount for eligible expenses. The accrued interest has been shown in SF-425 quarterly reports as an addition to the approved budget.

### **Data and Evaluation**

The Green Compass database maintained by MEC became the primary repository for energy retrofit project data under the EWKC grant.

At the request of the City of Kansas City, project data resulting from other projects performed with EWKC funds through the Mid-America Regional Council or other sub-recipients was integrated to Compass for the sake of consistency and reporting. Beginning in November 2013, MEC staff conducted a project-by-project review of all project data in Green Compass to assure data consistency and correct errors.

In January 2014, MEC staff supported EWKC's program evaluation, supplying files and documentation for a sample of project addresses. The program evaluation was conducted by a national contractor to the US Department of Energy totally independent of EWKC. The evaluators interviewed local program staff – both City and MEC – and directly contacted a randomly selected group of program participants to determine (1) that services were actually provided as noted in reports data files, and (2) that services were provided in an acceptable fashion.

### **Scope of Project Objectives (SOP) Accomplishments**

#### **Task 1: Development of New Financing Tools and Delivery Systems for Retrofits**

##### **Subtask 1.1: Customer Energy Service Coordination System**

This program drew on the model of the Green Impact Zone, which had developed a coordinated program of community engagement.

- Purpose: Provide an integrated, single point of contact to assist building owners in obtaining the entire package of financial and technical services customized to meet the retrofit needs.
- Approach-Outreach Staff: The MEC acted as the central contact point and coordinator of the one stop shop for customers. MEC hired seven outreach staff to work with neighborhood organizations in each of the targeted communities. The MEC Customer Service Representatives (CSR's) were each assigned a dedicated community to serve, assisting the communities with every aspect of the process: energy management counseling/training, energy audits, financing and incentives, delivery of retrofit services, quality assurance, and performance monitoring.
- Approach-Collaboration: KCP&L's Smart Grid project included an extensive education and outreach effort that was coordinated with the marketing and outreach effort for EnergyWorks KC. Additionally, a portion of EECBG funding was used to match funding for water conservation measures, such as low-flow toilets and showerheads, rain barrels and downspout disconnect efforts.
- Outcome: Integrated service that maximizes market penetration.
- Actual Results: Level of integrated services was limited, in part, by the grant recipient's focus on hiring and training core city, target neighborhood residents. Although the goal was achieved in terms of job creation, the skill base of the average person hired proved to be a difficult challenge to overcome.

#### **Subtask 1.2: Marketing**

- Purpose: Getting every property owner engaged in the EWKC program and aware of the neighborhood retrofit opportunities.
- Approach: In addition to neighborhood-based promotion of EWKC, recognition efforts for participants in EWKC included news releases and public announcements of participants using various media such as public signs, plaques on buildings, and recognition of key partners at a EWKC award luncheon, attended by all participants and members of the City Council.
- Outcome: Community-wide behavioral change in favor of cost-effective energy efficiency.
- Actual Results: Although program targets were exceeded, meaning demand for energy efficiency was acceptable to good, household choice to spend money, in the context of the market that had bottomed out, was limited and only picked up significantly when rebates to drive down the cost of the improvements were made available that doubled the impact of the existing utility program rebates under the Home Performance with ENERGY STAR® program. And, when combined with the actual results of the customer service coordination system, the beginning of market transformation that was contemplated had, if anything, minor impact. However, this was mitigated by education and outreach pursuant to the MARC sub-recipient contract activities which helped to drive demand for energy efficiency improvements.

#### **Subtask 1.3: Financial Services**

The financial services system of EWKC will be coordinated by a contractor experienced in community lending, in partnership with a coalition of lenders.

- Purpose: The financing system of EWKC, managed by Neighborhood Housing Services (NHS), and selected by competitive procurement, has provided a host of lending programs to fit the particular circumstance of the property owner.
- Approach – Coordination and Support: NHS has worked closely with the MEC staff and the property owner to develop and recommend the appropriate mix of financing. This work included

working with individual programs, utilities, and coalition of supporting financial institutions to access all applicable rebates, tax credits, and other financial incentives that reduced the amount of gap financing needed to implement energy retrofits.

- Approach – Alternative Financing: EWKC participants had access to either a revolving loan fund and/or an interest rate buy down fund, both managed and implemented by NHS, for energy efficiency retrofits.
- Approach – Conventional Financing: For property owners, landlords, and credit-worthy participants, conventional financing through a lender will was available through the EWKC program, including Mazuma Credit Union, GCI Credit Union, and NHS.
- Outcome: The concept was dropped in favor of a central lender who undertook those functions and responsibilities.
- Actual Results: The professional lender, Neighborhood Housing Services of KC, administered the lending program adequately.

#### **Subtask 1.4: Delivery of Whole Neighborhood Retrofits**

Working with a selected general contractor and a pool of more than 50 qualified contractors, these services was supported by a neighborhood-based marketing program and a high level of integration.

- Purpose: Retrofit over 2000 residential and commercial buildings within a defined region to achieve maximum level of market penetration of cost effective energy efficiency through a trained workforce. The retrofits will serve as a foundational investment in the redesign of underserved communities to put them on a path toward sustainability and to attract new businesses into targeted neighborhoods.
- Approach – Partnership Overview: The MEC deployed and relied on their group of trained Building Performance Institute (BPI) certified auditors to market on a neighborhood basis and to conduct residential and commercial energy audits. MEC maintains a list of over 50 trained contractors of which 25% are Minority Business Enterprise (MBE) and another 10% are Women Business Enterprise (WBE) certified. EWKC was to have hired a general contractor to manage implementation of the retrofits with MEC's CSR's packaging the program from design to implementation and working with both EWKC and the general contractor. The general contractor and MEC were to have worked to identify qualified contractors and to expand current programs to assist contractors to establish the necessary systems and credentials to be a successful retrofit contractor. The combination of the general contractor, a small group of certified auditors/contractors and the MEC staff were to have worked in a coordinated fashion to identify suitable neighborhoods, to educate the homeowners and businesses about the value of energy conservation, to enlist as many households as feasible on the identified blocks and to coordinate improvements realizing the benefits of reduced costs to the home owners as a result of bulk buying and grouped jobs for contractors.
- Approach – Measurement and Verification: Every contractor was subject to an onsite, third party audit of a random sample of 5% of its completed jobs on a quarterly basis. The CSR coordinated with the local electric and natural gas utilities, KCPL and Missouri Gas Energy (MGE), to assess the performance of the retrofit based on energy usage and communicate this feedback to the property owner. Additionally, MEC has evaluated the aggregate of projected savings to actual savings performance on all residential and commercial retrofits in concert with the utilities.
- Approach – Tracking: To enhance the retrofit management element of the program, MEC utilized the PSD and Salesforce database program to track and coordinate all of the components of individual retrofit jobs, including financing, contracting and commissioning. These systems allowed other organizations under the EWKC umbrella to easily coordinate with MEC.
- Outcomes: Provide 2,000 building retrofits over the grant period and another 400 retrofits in the following two years. The building retrofits will clearly impact building owners by reducing their

energy use and mitigating their energy bills while improving the quality of the building stock and its economic value. Further, the selected neighborhoods are all located in the urban core and/or first ring suburb areas that have been seriously impacted by the economic and real estate downturn; the proposed energy savings from retrofits will be an important tool in helping to reduce the likelihood of further foreclosures in these areas.

- Actual Results: The basic approach to this program element was changed in that (1) a general implementation contractor was eliminated in favor of the consumer friendly, one-stop-shop that evolved at MEC, (2) total reliance on too many individual, private sector contractors to function in a focused neighborhood approach, and (3) the very difficult national economic conditions proved insufficient to achieve the desired program element of whole neighborhood retrofits.

## **Task 2.0: Regional Energy market Transformation**

### **Subtask 2.1: State and Local Public Policy Changes**

- Purpose: The program will work for state, local and regional public policy changes to support additional financing tools for energy efficiency services.
- Approach: Statutory authority to utilize voluntary property tax assessments, in a Property Assessed Clean Energy (PACE) program, as a means for long-term financing and repayment of the costs of energy efficiency improvements, and utilization of utility bills in a “Pay as You Save” (PAYS) model for repayment of loans for energy efficiency improvements will be pursued. Implementing EnergyWorks KC will demonstrate a strong commitment by local government, energy utilities, the business community, financial institutions, and other public/private sector partners to transform the regional energy markets and mitigate the impacts on our community from future increases in energy costs.
- Expected Outcomes: This will enhance our ability to achieve legislative and regulatory changes to add more financial tools to our portfolio to sustain energy efficiency improvements and to facilitate replication of our success in Kansas City for other communities in our bi-state metro area, including Kansas City, Kansas, and across the States of Missouri and Kansas.
- Actual Results: This element of EWKC was included in the sub-recipient contract with Mid-America Regional Council (MARC). The two biggest elements identified in beginning the process of market transformation in the Kansas City region were upgrading of energy codes and financing.
  1. MARC worked with a group of local cities and counties, known as the Regional Energy Efficiency and Conservation Strategy (REECS) group and the Midwest Energy Efficiency Alliance (MEEA). REECS was comprised of 12 cities and counties in the region including the largest cities – Kansas City, MO, Independence, MO, Unified Government of Wyandotte County and Kansas City, KS, Overland Park, KS and the largest counties – Jackson County, MO, and Wyandotte and Johnson Counties in Kansas. A formal relationship was established with the Midwest Energy Efficiency Alliance (MEEA) to assist in updating/upgrading of the current energy codes in the various jurisdictions. The range of code adoption in cities/towns/counties in the region extended from IECC 2006 to nothing. The group worked for two years achieving adoption of an amended version of IECC 2012 in Overland Park, KS and Kansas City, MO that is the energy saving impact equivalent of something more than IECC 2009. Adoption by these two cities has an impact on nearly 50% of the regional population and, so, will affect all new construction and substantial rehab into the near future. The key element in the process was the establishment of a group of about 15 stakeholders - public, private and non-profit –to review the IECC 2012 codes and make recommendations. The group, which included the City of KCMO, BOMA, various apartment owners/manager associations, representatives of various trades, and the Sierra Club, met for several months and arrived at a set of amendments to the

IECC 2012 energy code to be recommended to City Council for consideration. The impact of the recommendations was developed by MEEA and, ultimately an agreement was reached. The recommendations were forwarded to the KCMO City Council with support letters from all stakeholders. The amended IECC 2012 energy code was adopted with no dissention.

2. MARC undertook a complete study of the efficacy of implementing the Property Assessed Clean Energy (PACE) program in the region. The first challenge proved to be the lack of enabling legislation in Kansas although Missouri had recently passed such legislation. Therefore, a PACE program could not be implemented regionally. The second challenge was that a statewide PACE program had already been established which offered membership at no cost. The City of Kansas City joined the existing statewide PACE Board thus making it almost impossible, at that time, to implement a local, independent PACE board.

### **Subtask 2.2: Creation of a Replicable Model for Energy Efficiency/Conservation Retrofits**

- Purpose: The model has been developed to service differing communities, income levels, and building types and to create tailored community-wide solutions across the metro area. Establishing a unique portfolio of solutions will add to the knowledge base of best practices and support replicable options nationally.
- Approach: By focusing significant initial efforts to serve lower-income households and neighborhoods, who will benefit most from energy efficiency investments in their homes, but who are least able to afford them, EnergyWorks KC will stimulate a demand for energy retrofits that will be easier to replicate in other areas of the community and metropolitan area. Other features include:
  - Utilizing a coalition of existing nonprofits and private organizations whose service areas extend across the metropolitan region creates an innovative model for integrating the various financial tools, packaging energy efficiency services, and vesting the residents in all aspects of the program.
  - Implementation of retrofits in residential, commercial, and industrial buildings will help resolve the unique challenges presented by each type of use. Utilizing the model in neighborhoods whose demographic and physical diversity mirrors the diversity of the region as a whole, allows for solutions to be tailored to particular communities.
- Outcomes: The complementary regional workforce and business development efforts will provide jobs and economic growth in distressed communities across the metropolitan area, while expanding the availability of energy efficiency retrofit services. Perhaps most importantly, a regional leadership group will pursue the goals and objectives of EnergyWorks KC on a broader scale, by pursuing public policy changes and connecting the program to sustainability efforts across the region.
- Actual Results:
  - EWKC stimulated greater demand for energy efficiency improvements. Anecdotally, EWKC Grant Administrator continues to receive and respond to calls asking for assistance in one or more of the EWKC project categories – (1) rebates is the most requested category of incentive requested, (2) requests for rain barrels and for water saving devices such as Water Sense rated toilets remain high, (3) requests for loans at interest rates lower than available in this market continue, and (4) requests for educational materials continues.
  - Those trained pursuant to EWKC projects retain their training and, where applicable, credentials that serve them.
  - Two groups established to address policy and workforce development issues – the Regional Energy Efficiency and Conservation Strategy (REECS) group and the Green Jobs Pipeline - continue to meet quarterly.



### **Subtask 2.3: Seeding Activities in other Communities in the Metro Area, including Kansas City, Kansas**

- Purpose: MARC's responsibilities in the EnergyWorks KC project are centered on actions to help transform the energy retrofit market and spread the ideas, processes, and practices developed and carried out in the retrofit work in the Kansas City neighborhoods.
- Approach: With limited resources and substantial goals, as enumerated above, it will be critical to integrate the work of EnergyWorks KC into other regional ongoing initiatives. A close integration will allow these programs to reinforce each other and will produce greater impacts. The two key opportunities for integration of initiatives are as follows:
  - MARC and ten of the formula EECBG recipients have formed a regional coalition to assist in promoting energy efficiency throughout the region and to facilitate coordinated programs and policy development. This includes the development of building energy codes in the region, promotion of energy retrofits, and the development of local government energy efficiency strategies. MARC manages this coalition and each participating EECBG recipient, including Kansas City, is contributing a small percent of their funds to the coalition's agenda. This regional initiative will be jointly managed with the MARC portion of Energy Works KC, particularly public education, replication, and policy development.
  - MARC has already initiated a green jobs strategy and has received a \$500,000 grant from the Walmart Foundation to support regional workforce initiatives, including efforts to develop sector-based partnership in the energy and green jobs sector. The green jobs coalition is working with training organizations, labor, and educational institutions to make sure that the workforce, especially those currently out of work, have the appropriate training and certifications to participate in the green economy in general and energy retrofits in particular. The coalition is also working with utilities and other organizations to identify and develop green job opportunities. EnergyWorks KC will integrate into this initiative, sharing management and leadership and multiplying the impact of both initiatives.
- Outcomes are projected to include:
  - **Policy Development and Replication** –MARC will work in partnership with a newly created Metropolitan Energy Retrofit Coalition and the existing EECBG Regional Coalition to develop new policies, approaches, and mechanisms to facilitate energy retrofits and expand the energy retrofit market in the Kansas City metro area. This will include the management of the replication fund to seed initiatives in other parts of the metro area, including Kansas City, KS.
  - **Job Training and Development** –MARC will work with stakeholders to develop and execute a pipeline that will train, certify, and place residents of the targeted neighborhoods and others in need of employment in Energy Works KC jobs and energy retrofit careers.
  - **Public Education** –MARC will work with the Metropolitan Energy Retrofit Coalition and the EECBG Regional Coalition to develop and execute a public education program to increase the awareness of the benefits of energy retrofits and the resources, especially newly developed resources, available for property owners to complete such retrofits. This will be closely dependent on the development of specific tools, financing mechanisms, and policies to facilitate energy retrofits.
  - **Training and Support for Neighborhood Organizations** – A key element of Energy Works KC is the outreach to the targeted neighborhoods, first in Kansas City, but eventually in other neighborhoods in the metro area, getting every resident and property owner involved in the energy retrofit program. MARC will support this effort by assisting in transferring lessons learned in the Green Impact Zone to neighborhood leaders and community organizations in other neighborhoods and communities. In addition, MARC's Government Training Institute, which is already conducting neighborhood leadership training in many Kansas City neighborhoods, will add a module to this training for marketing and outreach.
  - Actual Results:

- **Policy Development and Replication** –MARC continues to work in partnership with REECS and the existing EECBG Regional Coalition to develop new policies, approaches, and mechanisms to facilitate energy improvements and expand the energy retrofit market in the Kansas City metro area.
- **Job Training and Development** –MARC continues to work with stakeholders implementing a jobs pipeline that will train, certify, and place area residents in need of employment.
- **Public Education** –MARC, MEC and BTG continue to develop and execute public education programs. MARC maintains its webpages established under EWKC called “Beyond the Bulb”.
- **Training and Support for Neighborhood Organizations** – A key element of Energy Works KC is outreach to area neighborhoods in the Kansas City metro area, getting residents and property owners involved in the energy retrofit program. MEC, BTG and MARC continue to support this effort by assisting in transferring lessons learned in the Green Impact Zone and other activities to businesses, neighborhoods and community organizations. In addition, MARC’s Government Training Institute, which is already conducting neighborhood leadership training in many Kansas City neighborhoods, will add a module to this training for marketing and outreach.

### **Task 3: Development of Workforce and Business**

Enhancement of the region’s workforce to address quality retrofits will support the program’s sustainability. MARC will coordinate and support new and existing energy efficiency workforce and business development initiatives under EnergyWorks KC. Over the past five years, MARC has helped to coordinate a targeted workforce development program.

#### **Subtask 3.1 Improving the Development of Educational Programs, Networking, and Hiring Opportunities**

- Purpose: Support the region’s progress toward a sustainable future and offer new career paths for unemployed, dislocated and under-employed workers.
- Approach: To create targeted educational resources and create a sustainable source of well trained and employed workforce.
  - Initiatives under EnergyWorks KC are a new sector-based partnership and a virtual Green Center of Excellence for Greater Kansas City to connect and better integrate the region’s education and training providers for sharing curriculum for competencies, credentials and professional development. Grants will also be available to workforce investment boards, community colleges and not-for-profit training organizations to provide training and job placement services for a minimum of 160 residents in the energy conservation and efficiency field.
  - Through programs such as the Green Impact Zone’s community crews, young workers get the opportunity to learn job skills, help their community, and eventually be placed in permanent employment with a contractor.
  - A construction contractors’ incubator will be created in the Green Impact Zone by the Blue Hills Redevelopment Corporation. This center will provide space for classroom instruction, community meetings, administrative offices for construction contractors, and equipment storage.
- Outcomes: MARC’s sector partnership approach of bringing employers together with the public workforce system and community colleges has produced real outcomes of increased skills and additional employment at higher wages coupled with true energy savings.
- Actual Results:
  - MARC staff continues to support the regional Green Jobs Pipeline and the Workforce Development groups for creation and retention of jobs.

- Blue Hills Community Services (BHCS) completed its small business incubator and is fully operational. The award winning business incubator provides services, including shared back office operations and equipment, office space at below market rents, storage space and training classes for small contractors to grow and mature sufficiently to warrant moving wholly to unsupported operations. These small businesses, with their social and economic bases in the core city, also offer job training and opportunities to others in the core city.

### **Subtask 3.2: Deconstruction**

- Purpose: Deconstruction will be used as an alternative to traditional demolition of residential structures in targeted neighborhoods for access to materials for retrofit activities that would otherwise be lost to landfills and job opportunities for an otherwise marginalized workforce.
- Approach - Deconstruction: Will address buildings within the targeted neighborhoods that are not good candidates for retrofits because of the condition of the building, and provide reusable materials for other building retrofits.
- Approach – Workforce Development: The associated workforce development will likewise benefit economically challenged individuals and neighborhoods. The increase in demand and supply for retrofits will lay the foundation for a market transformation at the regional level, aided by regional partnerships.
- Outcomes: The EnergyWorks KC deconstruction initiative, which will provide potential employment for individuals who, because of a history of criminal behavior, might not be able to obtain jobs working on retrofits inside houses.
- Actual Results:
  - The EnergyWorks KC deconstruction initiative provided classroom training for contractors and workers to create potential employment for individuals who, because of a problems such as a history of criminal behavior, might not be able to obtain jobs working on weatherization or renovation activities inside houses.
  - EWKC defined three deconstruction pilot programs to stimulate the non-traditional approach to demolishing structures: (1) Ivanhoe Neighborhood, (2) East Patrol Division and Crime Lab, and (3) Green Impact Zone.
    - The Ivanhoe Neighborhood Coalition was able to secure a number of houses donated by Wells Fargo along with limited funds to help in the deconstruction process. MARC was able to secure other funds to provide professional classroom training for workers and contractors. Once trained, seven houses were bid out to test the premise of deconstruction and to continue worker training by offering hands on experience working for a private contractor. The seven houses were successfully deconstructed with materials donated to Habitat ReStore for resale.
    - Experience gained in the Ivanhoe Project set the basis for deconstruction in the East Patrol redevelopment area and in the Green Impact Zone.
    - Several houses were deconstructed in the Green Impact Zone that complemented a larger redevelopment project – the Bancroft School Redevelopment Project. The Bancroft project was initiated by NHS and local redeveloper and rental manager The Dalmark Group in partnership with the Make It Right Foundation started in New Orleans by Brad Pitt. The Bancroft redevelopment repurposed an old school to apartments for seniors with a very wide range of support, as well as construction of new rental units. The entire project was certified as LEED-Platinum. EWKC provided deconstruction support in the surrounding blocks thus improving the neighborhood and the environment in support of the larger redevelopment project.
    - The East Patrol Division and Crime Lab is a redevelopment project comprising 2 square blocks of a core city neighborhood that required demolition/deconstruction of 60

buildings. EWKC participated in providing support for residential deconstruction. The resulting facilities for the KC Police Department are planned as a LEED-Gold redevelopment project.

#### Task 4.0 Project Management and Reporting – MEC Activities

- Purpose: Documentation of project achievements and accounting of grant funds.
- Approach: To enhance the retrofit management element of the program, MEC will utilize an integrative database program to track and coordinate all of the components of individual retrofit jobs, including financing, contracting and commissioning. This database system will also allow the other organizations under the EnergyWorks KC umbrella to easily coordinate with MEC. Project staff will track outcomes, outputs and expenditures and ensure the project is attaining goals and objectives within the projected timeline, making adjustments with DOE approval, as necessary.
- Outcomes: Reports and other deliverables will be provided in accordance with the Federal Assistance Reporting Checklist following the instructions included therein.
- Actual Results:
  - MEC accomplished its contracted goals and objectives as follows:
    - Objective 1: Set up MEC core program management system
      - **Task 1: Hire and train staff** – MEC maintained commitments to recruit and hire from targeted neighborhoods. Customer Service Representatives (CSR's) were recruited, hired and trained from each of the EWKC targeted neighborhoods. As the program unfolded, CSR's were moved into more challenging roles based upon performance and capacity, and were provided with opportunities for continuing education and development. Additional temporary support staff were also hired for the EWKC program.

The following MEC employees were funded in full or in part to work under the EWKC Grant:

<b>MEC Staff Employed Under EWKC Grant</b>	<b>Totals</b>	<b>FT</b>	<b>PT</b>	<b>Temp</b>
<b><i>Total Employees working or hired for Grant</i></b>	<b>33</b>	<b>17</b>	<b>6</b>	<b>10</b>
Total Employees hired to manage grant	5	3	2	0
Total Employees hired to provide customer service	18	12	4	2
Total Employees hired as temporary for data entry	6	0	0	6
Total Employees hired as full-time contractual employees through ECCO Select	4	2	0	2

17 full-time and 6 part-time staff persons were recruited, hired and trained for roles in the EWKC program. These included 4 full-time contract positions procured through ECCO Select, a staffing agency. In addition, at particular moments during the grant period, a total of 10 temporary staff were hired, to assist in data entry or customer service roles.

12 full-time, 4 part-time and 2 temporary staff were hired as Customer Service Representatives, by far the largest group of employees hired under the grant. These individuals interacted directly with homeowners or commercial building owners and were assigned to each of the seven target areas, to office support roles or to Quality Assurance roles in support of the program.

The Customer Service Representatives assigned to target neighborhoods assumed the responsibility for outreach to homeowners, neighborhood associations, churches and other organizations within their assigned areas. CSR's attended neighborhood and homeowner association meetings, community health and service fairs and the meetings of various associations. Where possible, CSR's made presentations about energy efficiency and the EWKC program, distributed EWKC literature and marketing materials and asked people who were interested in finding out more about the program to sign up. CSR's would follow up with those that signed up or otherwise expressing interest to get them started in the program, helping the homeowner to identify an energy analyst that they wished to work with to obtain an energy audit of their home. CSR's would continue to work with and trouble-shoot for customers as they made their way through the process of energy audit, application for rebates, and installation of energy efficiency improvements.

As a result of media advertising for EWKC, many customers also contacted MEC offices directly to inquire about the program. These customers were assigned to a customer service representative who would serve as their liaison to help them move through the audit, installation and rebate process.

CSR's based in the office responded to telephone inquiries, helped to navigate homeowners through the rebate process, and helped process rebate applications.

CSR's hired for Quality Assurance roles were required to be BPI certified energy auditors with energy auditing and/or construction experience. Following Home Performance with Energy Star technical guidelines, the Quality Assurance staff selected 10% of audits and retrofit projects performed to ensure that private energy analysts and installation contractors performed their work correctly and that the customers were satisfied with the result. Energy Efficiency analysts or contractors with poor QA results risked being dropped from the list of certified energy auditors for Home Performance with Energy Star and EWKC.

Customer Service Representatives received initial training through a program of the University of Central Missouri. As the program unfolded, CSR's received additional training in sales, customer service and computer software applications.

In its implementation of the EWKC program, the Metropolitan Energy Center met both local hiring and MBE/WBE contracting commitments made to the City. CSR staff recruited and hired by MEC included individuals from each of the EWKC targeted neighborhoods. Also, four of the staff that were hired came from an MBE staffing agency, ECCO Select. Two of the contract employees were hired for administrative roles: a Financial Manager and an IT Specialist. These individuals helped to expand MEC's administrative and operational capacity to implement the EWKC program. Two other contract employees helped with data entry on a temporary basis.

- **Task 2: Acquire and install project and data management systems (IT)** – PSD Green Compass/Surveyor software was acquired and installed as project, data management, and modeling software for EWKC. Programming issues for the new software product were addressed. MEC staff and contractors were trained to use the software. An interface was

built between Green Compass and Salesforce to assist with managing workflow, contractor contacts, and additional data capabilities. At the end of the project, all contractors were utilizing Compass to report energy efficiency jobs. A majority were modeling projects in Surveyor. Thus a standard system and approach for residential energy auditing has been established in the Kansas City metropolitan area. It is expected that establishing a uniform system for the energy analysis and improvements by contractors will have a long-term, positive impact on the energy efficiency market. Continued utilization of the system will need to be monitored.

- **Task 3: Assist City staff in developing program related Requests for Proposals and selecting contractors pursuant to proposals received** – MEC worked in close partnership with the City to develop RFP's for marketing, financial services functions connected with the EWKC program. Particularly in the financial services component, this required several iterations: defining financial strategies, identifying potential vendors, and releasing RFP's before solid financial vendors were secured.
- **Objective 2: Assist in development of marketing program**
  - **Task 1: Consult with City and other marketing partners to create the marketing strategy - Result:** City staff opted to develop and implement the marketing program utilizing in-house staff. The City of Kansas City, MO took primary responsibility for the overall design of the marketing program, as well the implementation of most mass media outlet implementation (i.e. the "wholesale" marketing effort). MEC supported the development of the marketing program through continued feedback regarding messaging, suggestion of additional outlets, including MEC's website, utility contacts and neighborhood and community contacts.
  - **Task 2: Assist with all marketing materials taking care to be consistent in message - Result:** MEC participated in the marketing program in the following ways:
    - a. MEC played a critical role in implementing the "retail" marketing effort. MEC office staff and Customer Service Representatives distributed marketing materials through contractor networks, at neighborhood meetings and community events with an emphasis on the seven targeted neighborhoods: Eastwood Hills Homes Association, Green Impact Zone, Ruskin Heights/Hills Neighborhood, Washington-Wheatley Neighborhood Association, Westside Neighborhood, Winnwood-Sunnybrook Neighborhood, as well as the one targeted commercial district: Central Industrial District.
    - b. MEC staff featured in radio, TV, billboard and poster advertisements promoting the EWKC program.
    - c. MEC staff actively managed online website and email marketing for the EWKC program in collaboration with the City of Kansas City, MO.
    - d. Home Energy Makeover: A particular marketing strategy that was implemented as part of EnergyWorks KC was the "Home Energy Makeover" contest, the winner of which would receive a complete energy makeover with the goal of substantially increasing comfort and reducing energy costs. MEC staff managed the implementation of the Home Energy Makeover project, including audit and retrofit installation. Donations of services and materials were solicited from private

companies. The winner of the contest received a high efficiency furnace and air conditioning system, as well as air sealing and insulation: in-kind contributions totaling \$8,783.45. The Home Energy Makeover project resulted in 39.4% energy savings for the homeowner based on the post-improvement analysis.

- **Task 3: Work with other related programs to integrate EnergyWorks KC (EWKC) marketing strategy and message with similar initiatives operating in the same neighborhoods -**  
**Result:** MEC Customer Service Representatives participated in community meetings, fairs and events to distribute materials, present on energy efficiency, and let people know about the grant and rebate programs available.

Events that included EWKC branded material included:

Black Agenda Group	Cinco de Mayo at Guadalupe Center
Convoy of Hope	Earth Day Celebration
Eastwood Hills Coachlight Square Picnic	Green Impact Zone Friendship Sunday
Green Impact Zone Urban Homes Tour	
Green Zone Bishop Sullivan School	Guardian Angels Parish
Kansas City Home Show	Metro NBC Green Fair
Metro Sustainable Housing Conference	Metro KC Eco Fringe Festival
Metro GreenFest	Metro Black Expo
Metro Eco-Friendly Village	Northland Neighborhoods, Inc. -
Plaza de Ninos – Day Care Facility	Housewarming weatherization project
Rockhurst Community Resource Center	Ruskin Neighborhood -Bridging the Gap
Southtown Leadership Council	Troostwood Neighborhood Assn.
Weatherization Sunday (4 locations)	
Green Impact Zone Victory Temple Back-to-School Night	

- **Task 4: Work with MARC and City staff to complement EWKC workforce development activities with existing improvement-contractor networks and initiatives –**  
**Result:** MEC played an extensive role participating in and complementing EWKC workforce development activities including:

- Organization of workforce development opportunities directly connected to the grant
- Provision of training under the MARC Green Jobs Pipeline
- Provision of training with funds from other sources

#### **Organization of workforce development opportunities directly connected to the grant -**

**Customer Service Representatives** - MEC worked with the Full Employment Council and the University of Central Missouri to train 18 Customer Service Representatives including representatives from each of the EWKC targeted neighborhoods. In addition to basic training for the field, MEC provided the CSR's with BPI training and ongoing training regarding sales and marketing, the Green Compass / Surveyor and Salesforce software and other training related to their roles.

**Energy Auditors and Retrofit Contractors** - MEC provided BPI testing and certification, orientation and mentoring programs for new contractors, as well as enhancement programs including: Healthy Homes for Energy Practitioners, Lead RRP, and Section 106 Review. 10

training scholarships were directly provided by EWKC for participation in MEC's Home Performance contractor training and certification. MEC also organized continuing education programs for existing contractors in sales and marketing, Green Compass / Surveyor software and modeling, combustion safety, and mold remediation.

- b) MARC Green Jobs Pipeline** - In addition to its program management and community outreach roles in EWKC, Metropolitan Energy Center received a separate EWKC Workforce Development grant through the Mid-America Regional Council Green Jobs Pipeline program. With these funds, MEC trained and certified 84 unemployed or underemployed workers, placing 39 people in jobs relating to the field. In addition, MEC assisted 43 businesses related to the energy efficiency field through training and certification of their employees.

The training under the MARC Green Collar Jobs grant included residential energy auditing, commercial energy auditing, weatherization installation, deconstruction contractor, and reclaimed lumber processing.

The final project outputs on number of people trained and placed and number of businesses assisted under MEC's MARC Green Jobs Pipeline grant are as follows:

<b>INDIVIDUALS TRAINED, CERTIFIED, and PLACED</b>	<b>Target Goal</b>	<b>Total to-date (calculates)</b>
Number of Trained Workers	86	84
Number of Business Assisted	30	43
Number of Individuals Placed	60	39
Number of Certified Workers		84

#### **Weatherization Technician:**

**Trained Weatherization Technicians** - MEC trained 51 Weatherization Technicians in eight distinct Home Performance Training workshops under the EWKC Workforce Development Program. In addition to learning Building Science, Heating and Cooling Appliances and Weatherization Techniques, the trainees also were invited to participate in EPA Lead RRP (Renovation, Repair, and Painting ) training and certification and the Healthy Homes for Weatherization Technicians course developed by Children's Mercy Hospital as local training provider for the National Center for Healthy Homes. 31 individuals also received Lead RRP certification funded by the EWKC Workforce Development grant. The Healthy Homes for Weatherization Technicians was provided pro bono to MEC's Home Performance trainees on a periodic basis throughout the grant period.

**Combustion Workstation** - As a result of EWKC Workforce Development Program investments, a Combustion Training Workstation has been developed to teach students to observe and diagnose a number of combustion safety and energy efficiency issues that are common in Kansas City area homes.

The lab is equipped with a natural draft furnace, an 80% efficiency furnace, and a 90% efficiency furnace. Each furnace can be fired during a class and the instructor can manipulate a series of actuators that open and close dampers in the heating ducts simulating a range of conditions in the



home, including duct blockage and negative air pressure. Since constructed, the lab has been utilized both as a teaching tool and as a testing tool, to determine how well students have learned their diagnostic skills before they are certified to work in people's homes.

In addition to the furnaces and actuator system, the Lab includes both operating and cut-away hot water heaters to teach the structure and functioning of the hot water heaters and the combined effects of furnaces and hot water heaters on pressure and indoor air quality. *(See photo of the Combustion Workstation attached as Exhibit xx.)*

**Table-Top Workstations** - With EWKC Workforce Development funds, a series of modules have been created to teach insulation of joists, window caulking and weather-stripping, attic hatch insulation and other weatherization techniques. The training modules were constructed according to specifications outlined by the DOE's National Renewable Energy Laboratory for training Retrofit Installers, Crew Leaders and Energy Auditors under their new job classifications and position the Metropolitan Energy Center to be approved as a testing and training site for BPI and LIWAP programs that follow the NREL guidelines.

**Community Service** - As a component of each workshop, trainees received hands-on experience by weatherizing houses that were being redeveloped by local community development corporations, including: Ivanhoe Neighborhood Association, Westside Housing Organization, Blue Hills Community Services, the Housing Authority of KC-Youthbuild Program and Neighborhood Housing Services. MEC Training Program provided free labor and a supervisor/instructor while its community development partners provided materials. This kind of collaboration invests in the redevelopment of Kansas City's neighborhoods at the same time that individuals are learning job skills.

#### **Commercial Energy Auditor:**

**Scholarships for AEE Certified Energy Auditor (CEA)** - Metropolitan Energy Center committed to providing partial scholarships for ten individuals to complete the coursework and certification exam for the American Association of Energy Engineers "Certified Energy Auditor" designation. To receive the scholarship reimbursement, individuals not only had to obtain the certification, but also contribute a *pro bono* energy audit on a commercial or institutional building owned by a Kansas City not-for-profit organization.

While ten individuals were approved for scholarships, only six completed the AEE training and certification process and the *pro bono* energy audit within the time allotted. In addition to six individuals certified for commercial energy auditing, this program produced six additional energy audits for non-profit organizations, some of which implemented the recommended energy improvements under the EWKC program. The participating energy auditors have since been able to expand their businesses to include energy auditing for small commercial and multi-family buildings.

**TREAT and Building Compass Software Training Program** - As another step in equipping energy auditors to work with small commercial and multi-family structures, MEC contracted with Performance Systems Development (PSD) to conduct a training in TREAT and Building Compass -its energy efficiency modeling and reporting software programs for multi-family and small commercial structures.

This training turned out to be an extremely valuable continuing education opportunity for some of the Kansas City area's more experienced residential energy auditors. Not only did the training introduce or enhance participant understanding of the software tools, it also walked participants through a step-by-step process of conducting an energy analysis in complex multi-family and commercial structures. 12 people participated, of those, 9 have since begun conducting commercial and multi-family audits. In addition, trainees conducted hands-on auditing and diagnostic work on the buildings of two community-serving organizations: Community LINC, a transitional housing program for homeless families and the Anita B. Gorman Conservation Discovery Center, housing information and outreach services of the Missouri Department of Natural Resources.

#### **Deconstruction -**

**Deconstruction Worker Training** - MEC originally proposed to add a 2-day Deconstruction Worker Training course to its existing Environmental Remediation Worker Training programs, funded separately by the Environmental Protection Agency (EPA) and the National Institute for Environmental Health Sciences (NIEHS).

Realizing the over-funding of Deconstruction Worker Training under the EWKC Workforce Development Program, the three agencies funded for Deconstruction programs (MCC, Kansas City, KS Community College and MEC) came together to work out a common strategy for advancing Deconstruction and Building Materials ReUse in the metropolitan area. The result was a coordinated strategy including curriculum development (implemented by MCC), Deconstruction Worker Training (implemented by KCKCC in conjunction with MEC's Minority Worker Training Program) and Deconstruction Contractor Training (implemented by MEC in coordination with KCKCC's Worker Training). *(See photo of Deconstruction Worker and Contractor hands-on project attached as Exhibit xx)*

The products of this collaboration are:

- Kansas City piloted a national curriculum for Deconstruction Worker and Contractor Training for the Building Materials ReUse Association (BMRA).
- In return for investing in this curriculum development, the three participating institutions will have be able to utilize the BMRA curriculum without cost in perpetuity
- 9 contractors participated in the Deconstruction Contractor training and have begun to participate in Deconstruction bid opportunities.
- Contractor built relationships with Deconstruction Workers trained through KCKCC's program, resulting in a series of job placements since.

**Create a Reclaimed Lumber Processing Facility** - In response to the obvious gaps in the local deconstruction market, MEC decided to launch a Reclaimed Lumber Processing Facility, that would receive lumber from deconstructed buildings and process it for productive reuse.

With support from the EWKC Workforce Development Program, the Metropolitan Energy Center planned and equipped the start-up for the Reclaimed Lumber Processing Facility, that will receive lumber from deconstructed buildings, de-nail it, clean it, cut it to regular lengths and coordinate its resale (at higher prices) to furniture makers, architectural design firms, remodelers, and other potential end-users.

At a fundamental level, this is a process of restoring value to the wood and returning it to productive use. The resale of lumber to end-users offsets the higher cost of deconstruction on the front end,

producing an economic incentive to harvest wood from dilapidated buildings, rather than simply throwing it in the landfill. Building materials reuse not only conserves building materials and landfill space, it also conserves the energy embedded in the harvest, milling, transport, and sale of those materials. MEC's business plan projects 84,000 board feet of lumber processed and reused once the facility is fully operational. Based upon the EPA's Building Materials Outcome calculators (<http://www.epa.gov/cleanenergy/energy-resources/calculator.html>, et al.) this will result in 103,146 KWH energy conserved and 92 tons of CO<sub>2</sub> emissions diverted.

With support from the EWKC Workforce Development Program, MEC developed a business plan, purchased start-up equipment, established two processing facility locations, received and processed our first batch of lumber. Seven training graduates from the Deconstruction Worker and Deconstruction Contractor programs funded under the grant were recruited for 12 hours of training in processing reclaimed lumber. Three were hired to begin the Processing Facility.

#### "ReClaim KC - Next Steps"

With extended funding from the EWKC Workforce Development Program, the Metropolitan Energy Center created a partnership with staff of KC Kansas Community College which took several more steps in the development of the Reclaimed Lumber Processing Facility, which became known as "ReClaim KC", during the month of October, focusing activity on the project objectives:

- **Workforce Development:** To continue to develop the workforce for Kansas City's emerging deconstruction and reclaimed lumber processing industries.
- **Business Development:** To provide visibility and support for designers and craftsman that utilize reclaimed wood products in the Kansas City area
- **Market Development:** To stimulate and organize the market for reclaimed lumber in Kansas City

To achieve these project objectives, MEC partnered with a variety of local makers, designers, and distributors to provide the Reclaim KC staff with over 40 hours of professionally led, hands-on training. We also hosted two community events- one, a hands-on building workshop, and the other, an expo featuring makers and designers who use reclaimed materials in a variety of ways.

- **Workforce Development - a) Upskill Training - Oct 22-25, 2013**  
Reclaim KC worked with Ryan Bennett and Claire Willis of Deadleaf Designs, LLC to offer expert training in advanced tools and techniques used to restore and add value to reclaimed wood to ten trainees, including our three Reclamation Specialists, our Reclamation Team Lead and 6 individuals recruited from the community. Below is a schedule and description of the 10 hours of training Deadleaf provided to RKC staff:

Tuesday	Shop setup: Tool identification, safety, workflow, basic woodshop design. Basic plan reading. Special considerations when working with reclaimed.
Wednesday	Preparing wood: De-metaling. Squaring and cutting. Jointer, table saw, miter saw, planer.
Thursday	Assembly & laminating. Clamping & Glue Up.

Friday	Surface and edge finishing: Overhead drum sander, shaper, router. Natural finishes.
--------	--

Trainees learned proper, safe operation of the following tools and equipment:

- Handheld Metal Detector Wand
- Table Saw
- Miter Saw
- Jointer
- Bench-top Planer
- Overhead Drum Sander
- Oscillating Palm Sander
- Biscuit Joiner
- Bar/ Pipe clamps
- Dust collection equipment

In addition to the tool & equipment skill training, Deadleaf taught the following basic shop skills:

- Shop Setup: Tool and workbench construction, arrangement, and use.
- Plan reading and writing for simple product fabrication.
- Wood characteristic identification.
- Glue up/ laminating techniques.
- Hand sanding.
- Finishing with natural materials (linseed and tung oils).

In addition to 10 hours of in-shop instruction by Deadleaf staff, each trainee spent an additional 30 hours of hands-on skill application in the workshop, even helping to lead the Community DIY Furniture Building Event, hosted on October 26, 2013.

**Quick Stats:**

# trained:	10
# hours shop training per trainee:	10
# hours hands-on skill building per RKC staff trainee:	30+

- **Workforce Development - b) Community Do It Yourself Furniture Building Event:**

Oct 26, 8:30-4:30

On October 26th, Deadleaf Design staff led 5 community members and 3 RKC staff gathered at 815 Woodswether Rd to build small projects from reclaimed antique softwood, donated by John Peterson, sourced from an 1892 warehouse in Leavenworth, KS. During this event, RKC staff helped supervise tool stations on which they had been trained the previous week. Community members and trainees constructed furniture based on Deadleaf's adaptable designs, and one participant even featured his work in the Reclaimed Expo.

**Quick Stats:**

# attending:	8
\$ value of reclaimed lumber donated :	\$1600

- **Business Development - Reclaimed Expo & Open House: Oct 29, 2013**

100 community members, makers, and designers attended the Reclaimed Social & Expo. DRAW Architecture + Urban Design, 360 Architecture, Cinder Block Brewery, and others joined forces to help Reclaim KC celebrate local artists, furniture makers, and designers who feature reclaimed wood materials in their project at the Faultless Event Space, which itself is refurbished in reclaimed materials.

**Quick Stats:**

# of attendees:	100+
# exhibitors:	7
# sponsors:	6

- **Market Development - Marketing & Outreach**

MEC took two main approaches to marketing and outreach as market development tools. The first was to develop a logo and brand attractive to potential RKC customers, related marketing materials, and a web page to host multimedia documentation of the training, events, and materials, and a facebook page to leverage social media. The web address is: [www.reclaimkc.org](http://www.reclaimkc.org). The facebook page is at [reclaimkc.org](http://reclaimkc.org).

The second was to produce a versatile photo/ video marketing tool documenting and narrating the program activities. The video is hosted at:  
<http://www.youtube.com/watch?v=7ZhA0C3hzeM&feature=youtu.be>

Analytics for the web page are still under development, but the Facebook page generated 125 likes in less than 20 days, and was instrumental in driving awareness and registration for events.

**Training Scholarships -****Fund certification training or state license fees that will lead directly to employment opportunities -**

Scholarships were awarded to 5 individuals. These 5 scholarships covered the cost for certifications or state licensing making these individuals eligible for jobs requiring those certifications. These scholarships led directly to job placements or to promotions for underemployed individuals in residential energy auditing, lead abatement, asbestos abatement, hazardous material hauling, and environmental inspection.

**Provision of trainings with funds from other sources -** MEC provided training in Lead Abatement, Asbestos Abatement, hazardous materials handling, Lead RRP, OSHA 10-hour Construction Safety, and Forklift Certification. As these skills and certifications are important for individuals interested in deconstruction, MEC collaborated with Kansas City, KS Community College and Metropolitan Community Colleges to develop model national curriculum in deconstruction in conjunction with the Building Materials Reuse Association and to pilot test it in Kansas City.

MEC's remediation and worker safety training programs provided extensive leverage for EWKC Workforce Development Programs and a rich menu of training opportunities for workers and business owners in the energy efficiency field.

***Task 5: Work with MARC and City staff to assist in the evaluation of marketing and grassroots service delivery -***

**Result: Continuous Feedback and Learning -** MEC engaged in continuous dialog with MARC and City staff to evaluate and adapt marketing and service delivery throughout the EWKC program. This dialog addressed communication gaps and bottle-necks in retrofit processing and resulted in significant changes to the rebate and incentive structure, community outreach strategies, and the terms of the loan program.

**Task 6: Work with City staff to develop a water efficiency component -**

**Result:** MEC worked closely with City staff to plan the RFP for the water efficiency component. Once Bridging the Gap was selected to provide services, MEC CSR's met weekly with Bridging the Gap staff to develop strategies for jointly promoting energy and water efficiency projects in the EWKC target areas and elsewhere in the City. These sessions resulted in coordinated events in each target area, typically in collaboration with the local homes or neighborhood association to promote EWKC programs. Also, the close collaboration between MEC and Bridging the Gap enabled MEC CSR's to advertise and distribute water efficiency kits and toilet installs in targeted neighborhoods. In addition, MEC Training Department staff helped Bridging the Gap identify and recruit plumbers and plumbers helpers to assist with the project.

**Task 7: Develop educational schemes, props, and materials for Project Living Proof -**

**Result:** MEC developed specific educational stations at Project Living Proof demonstrating insulation types, window sash insulation, attic insulation, foam, as well as a host of high-efficiency or renewable mechanicals, including ground source heat-pump, solar thermal, solar photovoltaic, a heat exchanger, three kinds of hot water heaters and so forth. In addition to specific features of the house, EWKC marketing materials, articles and contact information were prominently displayed, allowing visitors to the house to learn about EWKC and participate.

Throughout the EWKC program period, Project Living Proof hosted numerous businesses, neighborhood and homeowner associations, schools and other organizations for tours, receptions, meetings and retreats. Participating individuals learned about residential energy efficiency through demonstrations of the various systems in the house, presentations on energy efficiency topics, and presentations about EWKC. EWKC literature was displayed prominently at Project Living Proof throughout the program period.

Some of the groups utilizing Project Living Proof during the project period included:

American Society of Interior Decorators	Building Operators Certification class
Children's Mercy Hospital Healthy Homes class	Commercial Energy Analyst training
Cultivate KC and the Urban Grown tour	ECOS youth program
Efficiency First Chapter meetings	Engineers without Borders
Grandview High School Green Tech Students	Greater KC Chamber of Commerce -
Green Impact Zone residents	Centurions Leadership Program
GreenWorks KC	Great Plains Chapter of the American
Heartland Renewable Energy Society	Society of Home Inspectors
HUD Sustainable Housing Conference	Historic Section 106 training
INROADS Board	Ivanhoe Neighborhood Council
Kansas City Art Institute students	KC Greens Committee
Kansas City Regional Clean Cities Coalition	Ewing Marion Kauffman Foundation staff
Landis+Gyr	MARC Sustainable Communities
Master Gardeners	MRI Global staff
Missouri Energy Initiative Conference	MO Public Service Commission
Paseo Academy students and faculty	Southtown Council
Sierra Club	The Troost Alliance
Troostwood Neighborhood Association	William Chrisman School
University Extension with the 4-H facility staff	Westside Housing Organization KC
US Dept of Homeland Security Immigration Services	Women in Energy
Westar	YMCA camp

## Environmental Management Commission

As Project Living Proof housed KCP&L's SmartGrid project demonstration, KCP&L staff also conducted tours and presentations at the house, including a meeting of the KCP&L Board, staff retreats, KCP&L Energy Camp participants, and other groups.

### **Task 8: Implement HEAL Pilot Project -**

**Result:** Establish an employee based concierge/customer service program in conjunction with the Clinton Foundation's Building Retrofit Home Energy Affordability Loan program (HEAL).

The Home Energy Affordability Loan Program (HEAL) is a residential energy efficiency retrofit program organized and delivered through the workplace, providing energy auditing, energy efficiency education and recommendations to the employees of participating public, private and nonprofit employers. Retrofit improvements are financed through a low-interest loan that is paid back on an employee's paystub.

Metropolitan Energy Center assumed responsibility for implementing HEAL Pilot Project in Kansas City, testing the concept of HEAL and hopefully, developing a system of implementation that can later be brought to scale. The pilot project, funded by EWKC, began in October, 2013 and continued through March, 2014.

For budget reasons and to ensure that the process and program goals of HEAL were closely followed, MEC opted to perform the energy audits in the pilot project, rather than contracting them out.

Four employers participated in the HEAL pilot project. These are:

- **BNIM** - a leading architecture and design firm in Kansas City
- **City of Independence, MO** - One of Kansas City, MO's neighbors to the east and the fourth largest municipality in Missouri (after Kansas City, St. Louis and Springfield).
- **Posty-Cards** - a small, family-owned greeting card manufacturing company that has won accolades for the LEED Platinum renovation of its manufacturing facility
- **Neighborhood Housing Services of Kansas City** - a non-profit community development corporation and the primary lender for the EWKC Loan Program and the HEAL pilot project

A fifth employer, **Boulevard Brewing Co.**, initially agreed to participate, but was subsequently sold to a Belgian firm and declined further participation.

74 energy audits were accomplished during the HEAL pilot project, resulting in 40 retrofit projects completed or pending, including 24 utilizing HEAL loan funds. BNIM and Posty Cards both provided strong employer support for the program and produced most of the activity in the pilot program. By the end of March, eleven HEAL projects were completed which resulted in:

therms Saved	kWh saved	mmbtu saved	% avg energy savings
7,221	7,622	748	53%

While the HEAL pilot sample is small, it appears that the availability of the loan funds allowed participants to take on larger projects, including furnaces and hot water heaters, that typically have not been part of Home Performance with Energy Star rebate programs.

**Additional Employers:** The following employers have expressed interest in participating in HEAL after the Pilot Program is complete:

MRI Global, Inc.

Faultless Starch

Children's Mercy Hospital

Service Management Group

MEC staff are following up with these and other employer prospects to further develop the program. One objective of the pilot program was to establish the base for sustainability of the HEAL concept without the significant subsidy provided by the City of Kansas City/EWKC.

**Speaking Invitations, grant prospects and other recognition:** MEC staff have been invited to speak at the following venues regarding the HEAL program:

- US Dept of Housing and Urban Development - Healthy Homes Conference - Region 7 & 8: March 26, 2014
- Affordable Comfort Inc. 2014 National Home Performance Conference - March 29 - April 1, 2014
- U.S. Green Building Council (USGBC) National Conference - October 2014.

In addition, Childrens Mercy Hospital Center of Environmental Health has included the Kansas City HEAL program in a research proposal on indoor air quality submitted to the Environmental Protection Agency.

These invitations and developing partnerships demonstrate considerable interest in the HEAL program.

**Objective 3: Assist in development and finalizing the financial services component**

***Tasks 1 & 2: Work with City staff to identify lender partners, to develop a financing mechanism and a Loan Loss Reserve (LLR) Fund -***

**Results:** MEC and City staff met with representatives from local banks, credit unions and other lending entities to identify potential partners as well as to understand what lenders needed in order to participate in the EWKC program. Despite initial enthusiasm among some local bankers, none of the banks responded to the initial RFP.

The City of Kansas City, MO set aside Loan Loss Reserve Funds for two credit unions that agreed to participate: KC Terminal Employees/Guadalupe Center Credit Union and Mazuma Credit Union. Loan Loss Reserve Funds were designed to lower default risk as an encouragement to make energy efficiency loans available to their members. However, the credit unions did not aggressively market the program and no energy efficiency loans were closed in connection with the EWKC program.

While there are surely many factors involved with the response of mainstream lenders to the EWKC program, including the lack of familiarity and local underwriting standards for energy efficiency improvement loans, the primary problem was probably that these initiatives were rolled out in the midst of the recession and that, in stark contrast to the lending activity prior to the collapse of the housing markets, lending institutions had become extremely conservative about making any kind of loans connected to real estate.

In their response to the RFP, the Neighborhood Housing Services of Kansas City (NHS) indicated that they would be interested in participating in a Revolving Loan Fund, but not in the Loan Loss Reserve Fund. After further discussions, City and MEC staff settled upon Neighborhood Housing Services of



Kansas City (NHS) as the primary lending institution in the EnergyWorks KC program. A program change to accommodate this shift in use of funds was approved by the DOE.

**EWKC Loan Program** - Neighborhood Housing Services of Kansas City has a long history serving the communities of Kansas City, including the EWKC targeted neighborhoods. The development of an energy efficiency loan program fits well with NHS' nonprofit, community development mission and complements their existing home improvement loan products.

As described in Attachment A, separate loan terms were developed for single family, commercial and multi-family properties. Funds were set aside for an Interest Rate Buy-Down, allowing 0% interest loans in target neighborhoods and 3% loans on a Citywide basis. A minimum FICO score of 580 was required.

Within the targeted neighborhoods, for-profit commercial properties and single family homes were eligible for loans up to \$15,000, however, non-profit institutions were eligible for loans up to \$50,000. Multi-family properties were eligible for loans up to \$3,000 per dwelling unit or \$90,000 per multifamily complex. The term for these loans was 15 years at 0% interest. Liens were filed for amounts over \$5,000.

In other neighborhoods of Kansas City, for-profit commercial properties and single family homes could obtain unsecured loans of less than \$5,000, but could obtain secured loans up to \$15,000. Interest rates were 3% for a 15 year loan. Other loan terms remained the same as those for the target neighborhoods.

The EWKC Loan Program became available April 4, 2012. It became clear that the lien requirement for loans over \$5,000 was a deterrent to the program. In October 2012, all loans became unsecured. In addition, contractors noted that many home owners would pay the cost of the improvements if they could use a credit card but did not want the burden of higher interest rates. A program change was instituted to allow payment to contractors for eligible expenses using a credit card with the RLF being a re-financing mechanism that relegated credit cards to a short-term bridge loan tool. These changes helped to spur the use of the EWKC loan funds.

***Task 3: Finalize all written procedures, lines of communication and written materials in order to implement the financing component -***

**Result:** MEC provided input in finalizing written procedures to implement the EWKC Loan Program and provided staff to work with Neighborhood Housing Services of Kansas City throughout the project to process EWKC Loan applications and to participate in the EWKC Loan Program Review Committee.

***Task 4: Work with City staff and utility partners to develop a rebate mechanism, including written procedures and materials, in order to implement the rebate component. -***

**Result:** In close partnership with the City of Kansas City, MO, MEC staff played a major role in crafting the rebate and financing incentive structure of EnergyWorks KC.

**Rebates and Incentives** - After thorough discussion and consultation with the major utilities and representatives from area banks and credit unions, the initial rebate and incentive structure for EWKC was proposed as defined in Attachment A (see Attachment A).

Highlights of this structure were:

Residential Rebates	
Energy Audit	Scholarships for full cost of initial audit up to \$500 for individuals at 80% of Area Median Income or below
Energy Efficiency Improvements	\$1,000 rebate for improvements resulting in 15% energy savings or more (on top of available utility rebates)
Commercial Rebates	
Energy Audit	Scholarships for nonprofit institutions for the energy audit, up to \$1,500
Energy Efficiency Improvements	Up to \$3,000 available for improvements resulting in 15% savings or more

In mid-2012, in order to stimulate demand and accelerate the pace of energy efficiency improvements, the decision was made by City and MEC, with the approval of DOE, to enhance the rebate structure for property owners which when added to the targeted 15% energy savings target of the DOE program guideline, created a truly performance-based program as follows (enhancements highlighted in yellow):

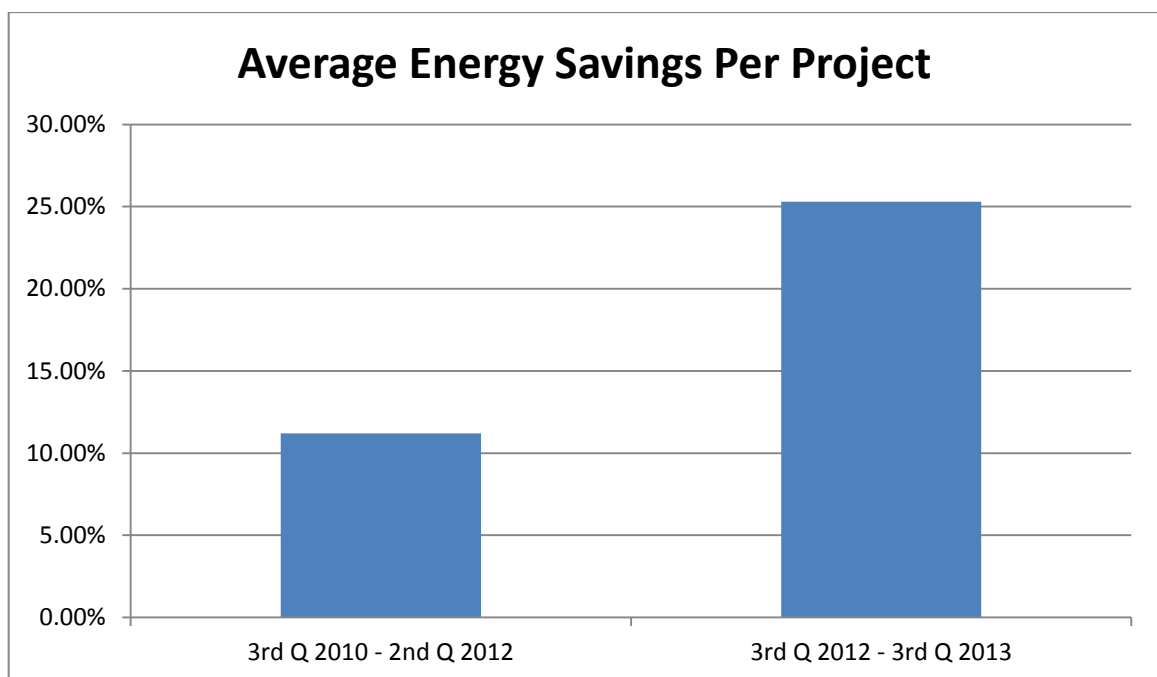
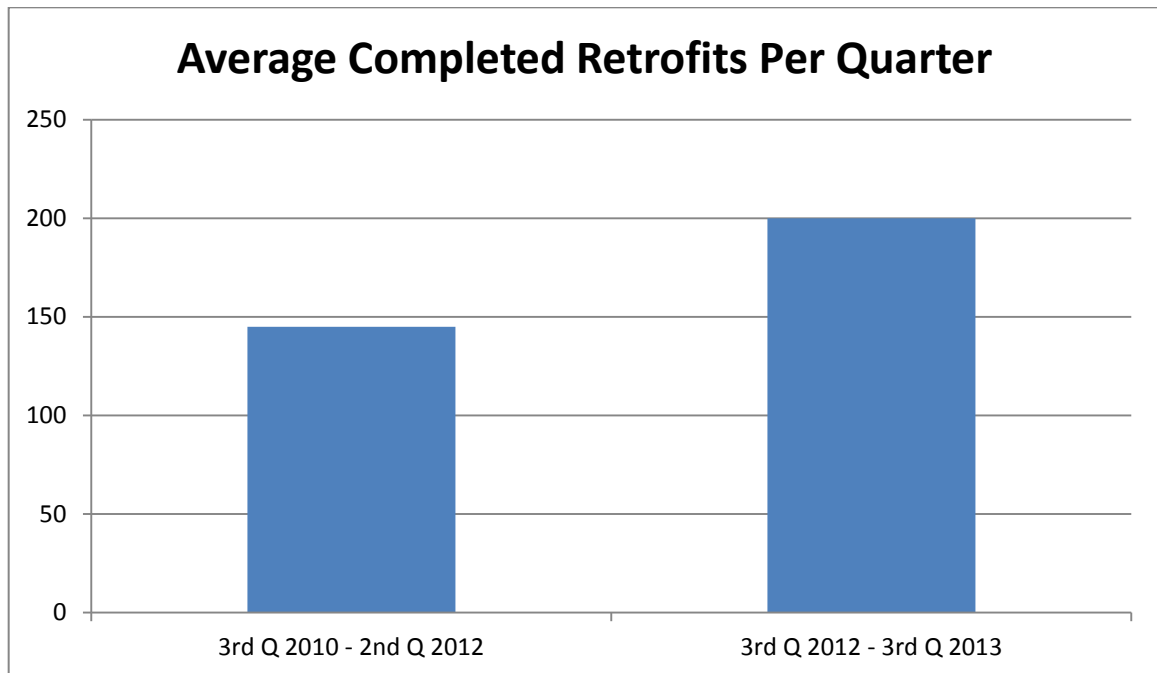
Residential Rebates	
Energy Audit	Scholarships for full cost of initial audit up to \$500 for individuals at 80% of Area Median Income or below
Energy Efficiency Improvements	\$1,000 rebate for improvements resulting in 15% energy savings or more (on top of available utility rebates); an additional \$1,000 for improvements resulting in 30% savings
Commercial Rebates	
Energy Audit	Scholarships (grants) for nonprofit institutions for the energy audit, up to \$1,500
Energy Efficiency Improvements	Up to \$3,000 available for improvements resulting in 15% savings or more; an additional \$3,000 for improvements resulting in 30% savings

In addition, the Energy Analyst could receive the following bonuses:

- \$100 for attaining at least 20% energy savings
- Additional \$100 for attaining at least 30% energy savings

This enhanced rebate structure was announced at the Midwest Home Performance with Energy Star Contractor meeting on August 23, 2012. Attachment B, the "Revised Financing and Incentives Package" is a handout from that meeting.

Based upon the Energy Efficiency Retrofit Data provided by the US Department of Energy for this period, the enhancements added in 2012 had a strong stimulative effect for residential projects.



As described in the tables above, from the launch of the EWKC program in the third quarter of 2010 through the second quarter of 2012, an average of 145 retrofit projects were completed per quarter, resulting in an average energy savings of 11.2%\*. Beginning in the third quarter of 2012 through the close of the program, an average of 200 retrofit projects were completed per quarter resulting in average energy savings of 25.3%.

The additional incentives announced in 2012 increased the number of retrofits completed as well as, more significantly, the average energy savings per retrofit project achieved and thus contributed greatly to the success of the program.

\* Note: The decision was made in 2012 to apply the rule of 15% savings or more across the entire retrofit portfolio, rather than requiring every single project to meet this savings threshold. As a result, projects that had been rejected early in the program because their savings were less than 15% were now allowed. This explains how it is possible for the average savings for the early period of the program to be less than 15%. Since this policy of applying the 15% rule across the entire portfolio remained in place through the end of the program, the increase in average savings is nevertheless striking.

**Objective 4: Implement the marketing program in the targeted neighborhoods**

***Task 1: Develop community marketing partnerships with community organizations that serve the residents of the neighborhoods. Send the MEC Customer Service Representatives into the neighborhoods.***

***Result:*** The Customer Service Representatives assigned to target neighborhoods assumed the responsibility for outreach to homeowners, neighborhood associations, churches and other organizations within their assigned areas. CSR's attended neighborhood and homeowner association meetings, community health and service fairs and the meetings of various associations. Where possible, CSR's made presentations about energy efficiency and the EWKC program, distributed EWKC literature and marketing materials and asked people who were interested in finding out more about the program to sign up. CSR's would follow up with those that signed up or otherwise expressing interest to get them started in the program, helping the homeowner to identify an energy analyst that they wished to work with to obtain an energy audit of their home. CSR's would continue to work with and trouble-shoot for customers as they made their way through the process of energy audit, application for rebates, and installation of energy efficiency improvements.

*As a result of media advertising for EWKC, many customers contacted MEC offices directly to inquire about the program. These customers were assigned to a customer service representative who would serve as their liaison to help them move through the audit, installation and rebate process.*

*In some instances, CSR's brought energy auditors who were interested with them to neighborhood meetings to assist in the presentation on energy efficiency and to build direct relationships with potential customers.*

*Also, workshops proved to be a key strategic driver to engage qualified leads, assist them to schedule energy assessments, and move them through the process to get work performed towards a 15% or more energy efficiency. The following gives a sampling of workshops that were conducted:*

EWKC hosted an Energy Savings Workshop specific to the Green Impact Zone, a targeted neighborhood, on October 27, 2012. MEC welcomed participation from 5+ auditors/contractors and Bridging the Gap. 33 homeowners participated and all signed up for an energy assessment. The workshop featured a welcome station, a PowerPoint presentation, and five stations for homeowners to engage in the program including:

- a. Qualify for a free energy assessment based on income requirements
- b. Talk to auditors and schedule an assessment
- c. Sign up in the Compass portal
- d. Understand the loan program and apply for a loan
- e. Meet with Bridging the Gap and received a water kit

**In addition to the targeted Green Impact Zone workshop, Energy Savings Workshops and events occurred in more sponsored locations including:**

Date	Event	# of households signed up
October 12, 2012	Icebreakers college hockey at the Sprint Center	31
October 18, 2012	Gymnastics at the Sprint Center	16
October 24, 2012	NBA Wizards vs Heat at the Sprint Center	43
November 11, 2012	Gospel Salute to Buck (a Negro League Baseball icon) at the GEM Theater	24
November 13, 2012	It's all Jazz at the GEM Theater	5
November 17, 2012	Annual Gearing Up for Technology & Health Fair at W.E.B. Dubois Learning Center	100
December 15, 2012	Toys for Tots at Gregg/Klice Community Center	42
December 18-19, 2012	City Hall	80
January 16, 2013	Vine Street Neighborhood	Data not available
January 21, 2013	Santa Fe Neighborhood Association	Data not available
January 26, 2013	Oak Park Neighborhood Association	Data not available
January 30, 2013	Wendell Phillips Elementary School	16
February 18, 2013	Washington Wheatley Neighborhood Association	16

Additional neighborhood outreach included:

Ruiz Library presentations every third Thursday at Ruiz Library - 20 households.

Stone Lion Puppet Show at the Roanoke Community Center – 3 households

Urban Summit, generating 89 leads.

EPA Sustainable Cities conference.

***Task 2: Develop relationships with business associations, Chamber of Commerce, and other such organizations to deliver commercial marketing message to the target areas.***

**Result :** MEC's Commercial Customer Service Representative met regularly with the Central Industrial District Association, the prime business association in the one predominantly commercial EWKC target area. Also, the Commercial CSR met with business associations, church coalitions, Building Owners and Apartment Managers, charter schools, and the Kansas City, MO School District to present EWKC and discuss opportunities for businesses, institutions and commercial building owners in the program. As a result of this work, 116 commercial buildings received energy efficiency retrofits, resulting in a 25.1% projected annual energy savings.

In addition, the Commercial CSR worked with Community LINC, MainCor and the Anita Gorman Conservation Discovery Center to provide buildings for training commercial energy auditors.

#### **Objective 5: Deliver services to residential and commercial buildings**

##### ***Task 1: Process incoming inquiries and applications for program -***

**Result:** MEC handled many thousands of inquiries and applications over the grant period, describing the EWKC program to prospective customers, energy auditors and contractors, as well as social service agencies, community organizations, environmental groups, and other interested parties.

##### ***Task 2: Complete residential and commercial audits and retrofit projects -***

**Result:** 4,326 residential and commercial audits were conducted in the Kansas City metropolitan area under the EnergyWorks KC program. These energy audits resulted in 2,819 completed projects, of which 116 were commercial or institutional buildings, 2,703 were residential. A total of 5,230,303 kWh and 678,488 Therms were saved on these projects. Total energy reductions on residential projects was: 18.5%. On commercial/institutional projects, energy usage was reduced by 25.1%.

##### ***Task 3: Organize and complete block weatherization projects in the target neighborhoods, to the extent feasible -***

**Result:** Neighborhood Block Weatherization projects proved to be cumbersome approach to performing the energy retrofits, because it required the close coordination of the entire block and work did not proceed until the entire block agreed to participate. Customer Service Representatives did not find homeowners who were interested in participating in block weatherization projects. As a result of feedback from participating neighborhoods, the strategy was dropped in favor of individual homeowner retrofits.

## **5. Challenges faced by MEC**

The primary challenge that the Metropolitan Energy Center faced in implementing EnergyWorks KC was the sheer magnitude of the project and the multi-faceted roles that MEC played in the program. EnergyWorks KC required that MEC grow rapidly in staffing and organizational capacity. The organization is left with greater organizational capacity, as manifested by a stronger accounting system, more formal policies and procedures, and more sophisticated office technology. The volume of energy audits and retrofit projects accomplished through EnergyWorks KC has also developed a very experienced, well-trained contractor base in Kansas City, with a core of effective companies that are invested in energy efficiency for the long term.

A second challenge to implementation occurred as a result of the decision to contract with PSD for Green Compass / Surveyor software. At the start, Green Compass / Surveyor was barely past its "beta" phase, but the software was rushed to the market in response to the rapid increase in government funding for residential energy efficiency programs. It took about a year before the glitches and compatibility issues with other software had been sufficiently resolved to allow the modeling/tracking/reporting functions of Green Compass / Surveyor to be functioning as intended.

Initially a source of many complaints from energy auditors, Green Compass is now a standard and most auditors have become accustomed to working with it.

As mentioned elsewhere, the strategy of Neighborhood Block Weatherizations did not work as intended. Coordinating the audits and retrofit projects for every house or most houses in a block proved unwieldy. Homeowners lost patience and were not satisfied with the approach. Instead, auditors and MEC staff shifted focus to individual home retrofits.

While EWKC greatly exceeded its residential retrofit goals, it did not meet its commercial retrofit goals. In retrospect, there are three factors that contributed to this outcome: a) The program was launched and largely implemented during a period of economic downturn at a time when commercial property owners and tenants were cautious about additional investments in facilities and banks were extremely conservative in their loan policies. b) It is possible that the incentives available for commercial retrofit projects was insufficient given the sheer scale of most such projects. That is, that the incentives were not enough to motivate behavior. c) The program also ran up against the split incentive problem in commercial projects, i.e. in many cases, the landlord has no motivation to invest in energy efficiency, because the tenants paid the utility bills.

### **Program Challenges**

Challenges were realized in implementation of the EWKC initiative relative to the original program design approved by DOE as well as with program changes. Those challenges, in some cases, required mid-grant period program changes in order to realize any achievements. Challenges included:

#### **Grant Recipient**

1. Soon after launching the EWKC initiative, the economy took a drastic downturn thus limiting the implementation of a central component of EWKC which was to focus on low to moderate income neighborhoods. A program change, approved by DOE, allowed citywide focus and, by extension, a larger market in which to operate.
2. EWKC was initially designed to provide only one type of financing incentive – a loan loss reserve. When public requests for proposals did not meet expectations, program milestone timelines were delayed and, in some cases, rendered meaningless due to the delays. This resulted in internal (staff) and external (customer) confusion and frustration. A program change, approved by DOE, resulted in a multi-faceted set of financing incentives. Due to the nature of the change, inter-program coordination changed and presented its own set of challenges.
3. Local lending institutions proved to be less interested in making loans for energy efficiency improvements than had been indicated in our discussions with them during development of our grant application.
4. After changes to the program design to offer rebate incentives, feedback from contractors and customers indicated the incentives provided for were insufficient to drive demand. Another program change, approved by DOE, provided greater performance incentives to customers plus an interest rate buy-down fund.
5. Mid-grant, the grant recipient's marketing coordinator resigned to take another job and, due to the nature of the employment conditions, existing staff – the grant administrator – took over the responsibility of continuing the marketing program.
6. Timely submittal of adequate information from the two primary program contractors, MARC and MEC, for preparation of progress reports to DOE was problematic.

#### MEC

1. As with the grant recipient, changes in program elements and design caused operational concerns and delays. This, in turn, caused coordination friction among program sub-recipients, and with contractors and customers.
2. The program design to hire staff from within the targeted neighborhoods resulted in difficulties with regard to staff assignments. Not all person hired proved capable or suitable for the neighborhood work envisioned. This placed pressures on other staff who had to fill in gaps for which they were not ready.
3. Differences of opinion and coordination issues occurred between grant recipient and sub-recipient staff with regard to marketing and outreach approaches. This resulted in some difficulties in operating the various agencies as a coherent team.

#### MARC

1. Program management staff originally hired proved to have capabilities other than what was needed for this program. Mid-grant, project management staff was changed.
2. The split political environments between Kansas and Missouri with regard to potential implementation of a PACE program proved to be problematic. Unlike Missouri, the State of Kansas had no enabling legislation for cities to create PACE programs or participate in existing PACE programs. So, while MARC's policy analysis of PACE financing and programs was beneficial, the prior existence of a statewide PACE program, which charged no membership fees, made it infeasible and unnecessary to create a local PACE program. However, Kansas City did affiliate with the statewide PACE program.
3. Late implementation of the education and outreach components of the MARC contract created a situation in which it was difficult for these elements of market transformation to be as effective as expected. As a result, the regional education and outreach component provided little support for the core program, in Kansas City, although it did have a positive impact regionally

#### BTG

1. Constraints in data quality placed limits on statistical validity in impact analysis
2. Maximizing the impact of water conservation program proved challenging due to:
  - a. Cost of the various measures including do-it-yourself and professional installation
  - b. Impact of Davis-Bacon Act wages in assessing cost impact, and ROI
  - c. DIY installation rate estimated at only 50% based on telephone surveys
  - d. Data collection plan providing controls for each component
  - e. Sufficiently early engagement with customers to allow for collection of water use data 12 months prior to and 12 months following installation of measures

#### NHS

1. As with the grant recipient and MEC, changes in program elements and design caused operational concerns and delays. This, in turn, caused coordination friction among program sub-recipients, and with contractors and customers.

#### **Lessons Learned**

1. Although at least six months was initially consumed for program planning, design and initial implementation, this proved to be insufficient in terms of designing the financial elements of the program. Even though meetings were held with commercial lenders and credit unions, more time could have been allotted to direct conversations with them regarding what program elements to offer and the best ways to offer them.



2. Additional market analysis could have been done but the onset and depth of the economic downturn proved to be a significant challenge.
3. Grant recipient relied on statements by credit unions that marketing materials and plans were being made. More direct conversations should have occurred that might have provided clues earlier that the selected credit unions were no longer interested in operating their respective loan loss reserve contracts.
4. More staff training and re-training should have been provided especially as program changes were made

### **Sustainability Plans**

The US DOE allowed the City of Kansas City, MO, the Metropolitan Energy Center and other organizations to try many strategies to find those that would work best. This was an invaluable opportunity! Looking forward, the problem is not how to sustain EWKC programs, per se, but how to move a whole industry that is overly reliant on government funding toward a more sustainable, market-driven posture.

1. **Revolving Loan Fund and Interest Rate Buy-down Fund** - The EWKC Revolving Loan Fund (RLF) Program and Interest Rate Buy-down (IRBD) fund have been extended beyond the original term of the grant to provide an ongoing resource for financing energy efficiency improvements in the Kansas City area. The RLF will continue to provide loans as long as the repayment funds are available to be re-loaned. The IRBD is a grant offered as an incentive supporting greater energy savings and will be available as long as funds are available.
2. **Home Energy Affordability Loan (HEAL) Program** - HEAL is an innovative, nationally recognized energy efficiency program created by the William J. Clinton Foundation Climate Initiative (CCI). Founded with the goal of standardizing an energy-based employee benefit, CCI HEAL is designed to guide the employee through every facet of the home energy process, from home assessment to financing to the energy upgrade itself. The result is a comprehensive benefit that yields disposable income, reduces greenhouse gas (GHG) emissions, and encourages employee retention. Benefits for employers include:
  - Cost-effective employee retention
  - Leveraging public ratepayer funds to offset the costs of obtaining an energy analysis and improvements, HEAL often generates a higher return on investment (ROI) than is typically seen in other employee benefits.
  - Improved health and wellness by creating a healthier indoor environment
  - Increased environmental stewardship by employees empowering them to make a difference in the climate
3. **Kansas City Energy Project (CEP)** - On January 29, 2014, City of Kansas City, Mo., Mayor Sly James announced that Kansas City was selected to participate in a 10-city effort to significantly boost energy efficiency in commercial and industrial buildings citywide, a move that could over time lower the energy bills of Kansas City businesses by as much as \$55 million annually and reduce the total amount of energy used citywide by 5%.

Over the next three years, Kansas City is participating in the new City Energy Project, an initiative from the Natural Resources Defense Council and the Institute for Market Transformation that is designed to create healthier, more prosperous American cities by targeting their largest source of

energy use and climate pollution: buildings. The following cities will be joining Kansas City as the project's first participants: Atlanta, Boston, Chicago, Denver, Houston, Los Angeles, Orlando, Philadelphia and Salt Lake City.

Funded by a partnership with Bloomberg Philanthropies, the Doris Duke Charitable Foundation, and The Kresge Foundation, the City Energy Project will help the 10 cities craft their own customized plans for boosting energy efficiency in their buildings.

Buildings are responsible for 60 percent of Kansas City's carbon emissions – more than either the transportation or industrial sectors. This is true among most other U.S. cities as well. Much of the energy these buildings use, however, is wasted.

#### Program elements for the Kansas City Energy Project Initiatives Plan

- Benchmarking & transparency
- Building operator certification
- Energy efficiency improvements in municipal operations
- Challenge programs, recognition, & awards
- Financing mechanisms for energy efficiency
- Energy efficient leasing
- DOE's Energy Data Accelerator initiative
- Regionalization of energy efficiency in large buildings
- Identification of additional measures from USDN & Heartland network

4. **Energy Data Accelerator (EDA)** – In partnership with KCP&L, the City signed an agreement to participate in the Energy Data Accelerator initiative of the US Department of Energy (DOE) Better Buildings Program. The EDA initiative is intended to pilot test various approaches to aggregate whole building energy use data in multi-metered buildings. It is an excellent complement to KCMO's participation in the CEP, as described above. The City, as part of the CEP/EDA approach, has established an Advisory Committee including a wide range of stakeholders that includes building owners and managers, KCP&L, the Greater Kansas City Chamber of Commerce, Kansas City Industrial Council, the International Brotherhood of Electrical Workers (IBEW Local 124), Kansas City Public Schools, University of Missouri – Kansas City, Rockhurst University, and other key stakeholders. The Committee will work with KCMO to encourage owners and managers of large commercial and institutional buildings to benchmark their respective building portfolios, using Portfolio Manager, and to make energy efficiency improvements. The KCEP, as described above, will go beyond the horizon of the EDA to also encourage recognition and awards for performance achievements.
5. Another direction for program sustainability is an expansion of awareness and services to other areas outside the Kansas City metropolitan area. As a result of EWKC there is high awareness of residential energy efficiency in the Kansas City Metropolitan Area, at least as compared with surrounding communities. Kansas City also has developed a seasoned, well-trained workforce. There is much less awareness of energy efficiency opportunities in the smaller cities and towns in other parts of western Missouri. The two major utilities in the area: KCP&L and MGE are interested in expanding activities on residential energy efficiency programs to focus more attention on outlying areas. This provides growth opportunities for the companies that have been developed in the Kansas City Metro Area and will lead to greater momentum around energy efficiency issues on the regional and state level, which will be necessary if the gains made through EWKC are to result in long-term market transformation or policy level change.

## **DEVELOPED PRODUCTS**

The initial "EWKC Financing Incentives" and the "Revised Financing and Incentives Package" are identified as Attachment A and B respectively.

Metropolitan Energy Center worked with the City of Kansas City, MO to develop a wide range of marketing and training products in connection to the EnergyWorks KC program. Those products developed specifically by MEC staff include:

Staff Training Manuals  
Website Designs and Information  
Radio interviews  
Neighborhood Flyers  
Powerpoint presentations on EWKC or the HEAL program  
Flyers and handouts by MARC and BTG ...

Please find attached a sampling of products in formats that could be readily attached and forwarded, including:

- a) EWKC Cold Calling and Powers of Persuasion
- b) EWKC Core Selling Skills
- c) Northland e-blast article, 2-2012
- d) Healthy Homes Presentation - 3-25-14
- e) Northland Lifestyle article - April 2013
- f) Sales and Customer Handbook
- g) Winnwood Flyer

## Attachment A

### Metropolitan Energy Center EnergyWorks KC – Final Report

#### 1. TITLE PAGE

*Contract Number:* EECBG-ARRA-OEQ-2

*Project Title:* EnergyWorks KC

*Project Name(s):* EWKC retrofit program, EWKC Loan Program, EWKC Workforce Development Program, Home Energy Makeover, Home Energy Affordability Loan (HEAL) Pilot Program, ReClaim KC

*Name of Project Director:* Warren Adams-Leavitt, MEC Executive Director

*Team Members:* Tim Kemper, MEC Building Programs Manager  
Mohamad Qureshi (Oz), MEC Program Manager- HEAL

#### 2. EXECUTIVE SUMMARY

The EnergyWorks KC regional partnership was formed to reshape the energy retrofit market in the Kansas City metropolitan region through policy changes and development of programs, capacity, and tools for energy efficiency retrofits. The City of Kansas City, MO; the Metropolitan Energy Center (MEC) and the Mid-America Regional Council (MARC) served as primary partners in an effort to develop new capacity and tools to invigorate the regional energy market, transform existing building stock, reduce energy use and achieve significant revitalization of neighborhoods. The U.S. Department of Energy Better Buildings Neighborhood Program awarded EnergyWorks KC with an Energy Efficiency and Conservation Block Grant for a program officially beginning July 2010 and running, with extensions, through March 31, 2014.

The Metropolitan Energy Center's role in EnergyWorks KC consisted of:

- Providing a single point of contact for delivery of energy efficiency retrofit services, including marketing and outreach, customer applications, energy audits, information on obtaining energy efficiency financing, resources for obtaining energy efficiency upgrades, quality control and assurance.
- Designing and implementing a rebate and incentive program that will generate energy efficiency upgrades in Kansas City neighborhoods
- Assisting the City of Kansas City, MO in developing the marketing program and the financial services components to the project
- Implementing the marketing program and service delivery in targeted neighborhoods

Results: The energy savings resulting from the EnergyWorks KC program is described below:

	# of Retrofits	% energy reduction	kWh saved	Therms saved	MMBtus saved
<b>Residential</b>	2,703	18.50%	4,302,507	665,303	81,210
<b>Commercial</b>	116	25.10%	927,796	13,185	4,484
<b>Total</b>	<b>2,819</b>	<b>18.50%</b>	<b>5,230,303</b>	<b>678,488</b>	<b>85,694</b>

With EnergyWorks KC support, 4,326 residential and commercial energy analyses (audits) were conducted in the Kansas City Metropolitan Area, resulting in 2,819 energy efficiency improvements, exceeding the

proposed project goals of 2,000 retrofits by a considerable margin. The energy efficiency improvements implemented on these buildings produced an overall reduction in energy use for residential structures of 18.5% and reductions on energy use for commercial structures of 25.1%. These reductions represent 5,230,303 kWh and 678,488 Therms of annual savings. EWKC contributed \$3,059,690 in direct project investments to these projects, leveraging \$6,877,390 from building owners, utility rebates and other sources, for a total project investment of \$9,937,080.

### **3. FINAL TECHNICAL REPORT**

#### **A. Institutional Design and Business Model**

The core business strategy for EWKC's primary retrofit program was:

- Development of the market for energy efficiency improvements in Kansas City through an ambitious marketing and awareness campaign as well as the provision of incentives for retrofit improvements
- Development of the private energy auditing and retrofit industry in the Kansas City area to respond to the growing market
- Creation of a Revolving Loan Fund, Loan Loss Reserve Fund and other financing mechanisms to leverage additional capital investment in residential and commercial buildings, and to strengthen energy efficiency financing in Kansas City for the longer term

The Metropolitan Energy Center's role within EnergyWorks KC's business strategy consisted of providing a single point of contact for delivery of energy efficiency retrofit services, including marketing and outreach, customer applications, energy audits, information on obtaining energy efficiency financing, resources for obtaining energy efficiency upgrades, quality control and assurance. As the point of contact, the Metropolitan Energy Center became the central liaison between homeowners, energy efficiency professionals, utility rebate programs and City government. The role required the development (in consultation with the City) of energy efficiency retrofit standards, a structure of rebates and incentives for homeowners and commercial building owners, paper and online application forms and data systems, as well as the creation and organization of a cadre of Customer Service Representatives to engage homeowners in the targeted neighborhoods and the broader community regarding the EWKC program and energy efficiency more generally.

MEC also played a major role both directly and indirectly in developing the workforce for energy efficiency contracting in Kansas City.

#### **B. Program Design and Customer Experience**

MEC adopted several program design decisions that were pivotal in their impacts on the program:

- 1) EnergyWorks KC was integrated with the existing Midwest Home Performance with Energy Star partnership, utilizing the same contractor list and standards so that rebates and incentives could be layered on top of the existing utility rebates.
- 2) The PSD Green Compass / Surveyor software was adopted to provide an online data management system for submitting energy audits, modeling of home energy usage, and tracking retrofit projects
- 3) A cadre of Customer Service Representatives were trained and assigned to provide community outreach and education in targeted neighborhoods

### **C. Driving Demand**

EWKC drove demand for energy efficiency through an aggressive marketing campaign and through an attractive structure of rebates and incentives for residential and commercial buildings.

EWKC's marketing strategy was designed and directed by City of Kansas City, MO staff with input from the Metropolitan Energy Center. The City designed and produced advertising, media, and program literature for a wide variety of markets. Metropolitan Energy Center's Customer Service Representatives utilized these marketing materials in engaging homeowners and presenting the materials at neighborhood and community meetings in the targeted neighborhoods. In addition, program literature was distributed to residential and commercial energy auditors and retrofit contractors to use in speaking with building owners about the program.

MEC played a major role in crafting the structure of rebates and incentives that were made available to property owners through EnergyWorks KC. The rebate structure was adapted in the course of the program as it became clear what worked and what did not work.

### **D. Workforce Development**

The Metropolitan Energy Center also provided a great deal of workforce development training in support of EnergyWorks KC, including:

- Organization of workforce development opportunities directly connected to the grant
  - Customer Service Representatives
  - Energy Auditors and Retrofit Contractors
- Provision of training under the MARC Green Jobs Pipeline
  - Residential and Commercial Energy Auditors
  - Weatherization Installers
  - Deconstruction Contractors
  - Reclaimed Lumber Processors and Furniture Makers
- Provision of training with funds from other sources
  - Environmental Remediation Workers and Inspectors
  - Hazardous Material Handlers

### **E. Financing and Incentives**

Metropolitan Energy Center staff worked closely with the City of Kansas City, MO to develop and test a series of financing strategies designed to leverage additional capital investment into energy efficiency improvements in Kansas City buildings, including: a revolving loan fund, loan loss reserves, an interest rate buy-down, as well as secured and unsecured loan products. These products evolved through the course of the program as it became clear what financing strategies were effective for Kansas City during the economic context of 2010 - 2013. The results will be discussed below under achievements.

### **F. Data and Evaluation**

MEC's Green Compass database became the primary repository for energy retrofit project data under the EWKC grant. A monthly and quarterly data reporting process was established and implemented to convey project data from MEC to the City of Kansas City, MO and then to the Department of Energy.

At the request of the City of Kansas City, MO, project data resulting from other projects performed with EWKC funds through the Mid-America Regional Council or other sub-recipients was integrated into Compass for the sake of consistency and reporting.

Beginning in November 2013, MEC staff conducted a project-by-project review of all project data in Green Compass to assure data consistency and correct errors. In January 2014, MEC staff supported EWKC's program evaluation, supplying files and documentation for a sample of project addresses.

#### 4. ACCOMPLISHMENTS

##### **Objective 1: Set up MEC core program management system**

##### **Task 1: Hire and train staff -**

**Result 1:** The following MEC employees were funded in full or in part to work under the EWKC Grant:

<b>MEC Staff Employed Under EWKC Grant</b>	<b>Totals</b>	<b>FT</b>	<b>PT</b>	<b>Temp</b>
<b>Total Employees working or hired for Grant</b>	<b>33</b>	<b>17</b>	<b>6</b>	<b>10</b>
Total Employees hired to manage grant	5	3	2	0
Total Employees hired to provide customer service	18	12	4	2
Total Employees hired as temporary to do data entry	6	0	0	6
Total Employees hired as full-time contractual employees through ECCO Select	4	2	0	2

17 full-time and 6 part-time staff persons were recruited, hired and trained for roles in the EWKC program. These included 4 full-time contract positions procured through ECCO Select, a staffing agency. In addition, at particular moments during the grant period, a total of 10 temporary staff were hired, to assist in data entry or customer service roles.

12 full-time, 4 part-time and 2 temporary staff were hired as Customer Service Representatives, by far the largest group of employees hired under the grant. These individuals interacted directly with homeowners or commercial building owners and were assigned to each of the seven target areas, to office support roles or to Quality Assurance roles in support of the program.

The Customer Service Representatives assigned to target neighborhoods assumed the responsibility for outreach to homeowners, neighborhood associations, churches and other organizations within their assigned areas. CSR's attended neighborhood and homeowner association meetings, community health and service fairs and the meetings of various associations. Where possible, CSR's made presentations about energy efficiency and the EWKC program, distributed EWKC literature and marketing materials and asked people who were interested in finding out more about the program to sign up. CSR's would follow up with those that signed up or otherwise expressing interest to get them started in the program, helping the homeowner to identify an energy analyst that they wished to work with to obtain an energy audit of their home. CSR's would continue to work with and trouble-shoot for customers as they made their way through the process of energy audit, application for rebates, and installation of energy efficiency improvements.

As a result of media advertising for EWKC, many customers also contacted MEC offices directly to inquire about the program. These customers were assigned to a customer service representative who would serve as their liaison to help them move through the audit, installation and rebate process.

CSR's based in the office responded to telephone inquiries, helped to navigate homeowners through the rebate process, and helped process rebate applications.

CSR's hired for Quality Assurance roles were required to be BPI certified energy auditors with energy auditing and/or construction experience. Following Home Performance with Energy Star technical guidelines, the Quality Assurance staff selected 10% of audits and retrofit projects performed to ensure

that private energy analysts and installation contractors performed their work correctly and that the customers were satisfied with the result. Energy Efficiency analysts or contractors with poor QA results risked being dropped from the list of certified energy auditors for Home Performance with Energy Star and EWKC.

Customer Service Representatives received initial training through a program of the University of Central Missouri. As the program unfolded, CSR's received additional training in sales, customer service and computer software applications.

In its implementation of the EWKC program, the Metropolitan Energy Center met both local hiring and MBE/WBE contracting commitments made to the City. CSR staff recruited and hired by MEC included individuals from each of the EWKC targeted neighborhoods. Also, four of the staff that were hired came from an MBE staffing agency, ECCO Select. Two of the contract employees were hired for administrative roles: a Financial Manager and an IT Specialist. These individuals helped to expand MEC's administrative and operational capacity to implement the EWKC program. Two other contract employees helped with data entry on a temporary basis.

***Task 2: Acquire and install project and data management systems (IT) -***

**Result 2:** PSD Green Compass/Surveyor software was acquired and installed as project, data management and modeling software for EWKC. Programming issues for the new software product were addressed. MEC staff and contractors were trained on the software. An interface was built between Green Compass and Salesforce to assist with managing workflow, contacts management and additional data capabilities. At the end of the project, all contractors were utilizing Compass to report jobs. A majority were modeling projects in Surveyor. Thus a standard system and approach for residential energy auditing has been established in the Kansas City Metropolitan Area.

***Task 3: Assist City staff in developing program related Requests for Proposals and selecting contractors pursuant to proposals received -***

**Result 3:** MEC worked in close partnership with the City to develop RFP's for marketing, financial services functions connected with the EWKC program. Particularly in the financial services component, this required several iterations: defining financial strategies, identifying potential vendors, and releasing RFP's before solid financial vendors were secured.

**Objective 2: Assist in development of marketing program**

***Task 1: Consult with City and other marketing partners to create the marketing strategy -***

**Result 1:** City staff opted to develop and implement the marketing program utilizing in-house staff. The City of Kansas City, MO took primary responsibility for the overall design of the marketing program, as well the implementation of most mass media outlet implementation (i.e. the "wholesale" marketing effort). MEC supported the development of the marketing program through continued feedback regarding messaging, suggestion of additional outlets, including MEC's website, utility contacts and neighborhood and community contacts.

***Task 2: Assist with all marketing materials taking care to be consistent in message -***

**Result 2:** MEC participated in the marketing program in the following ways:

a) MEC played a critical role in implementing the "retail" marketing effort. MEC office staff and Customer Service Representatives distributed marketing materials through contractor networks, at neighborhood meetings and community events with an emphasis on the seven targeted neighborhoods: Eastwood Hills Homes Association, Green Impact Zone, Ruskin Heights/Hills Neighborhood, Washington-Wheatley



Neighborhood Association, Westside Neighborhood, Winnwood-Sunnybrook Neighborhood, as well as the one targeted commercial district: Central Industrial District.

b) MEC staff featured in radio, TV, billboard and poster advertisements promoting the EWKC program.

c) MEC staff actively managed online website and email marketing for the EWKC program in collaboration with the City of Kansas City, MO.

d) Home Energy Makeover: A particular marketing strategy that was implemented as part of EnergyWorks KC was the "Home Energy Makeover" contest, the winner of which would receive a complete energy makeover with the goal of substantially increasing comfort and reducing energy costs. MEC staff managed the implementation of the Home Energy Makeover project, including audit and retrofit installation. Donations of services and materials were solicited from private companies. The winner of the contest received a high efficiency furnace and air conditioning system, as well as air sealing and insulation: in-kind contributions totaling \$8,783.45. The Home Energy Makeover project resulted in 39.4% energy savings for the homeowner.

***Task 3: Work with other related programs to integrate EnergyWorks KC (EWKC) marketing strategy and message with similar initiatives operating in the same neighborhoods -***

**Result 3:** MEC Customer Service Representatives participated in community meetings, fairs and events to distribute materials, present on energy efficiency, and let people know about the grant and rebate programs available.

Some of the events that included EWKC branded material include:

*Black Agenda Group*

*Convoy of Hope*

Eastwood Hills Coachlight Square Picnic  
Green Impact Zone Victory Temple Back-to-School  
Green Zone Bishop Sullivan  
Kansas City Home Show  
Metro Sustainable Housing Conference  
Metro GreenFest  
Metro Eco-Friendly Village  
Guadalupe Centers, Inc - Plaza de Ninos

*Rockhurst Community Resource Center*  
*Southtown Leadership Council*

*Troostwood Neighborhood Assn. - Weatherization Sunday (4 locations)*

*Cinco de Mayo at Guadalupe Center*

*Earth Day Celebration*

Green Impact Zone Friendship Sunday  
Green Impact Zone Urban Homes Tour  
Guardian Angels Parish  
Metro NBC Green Fair  
Metro KC Eco Fringe Festival  
Metro Black Expo  
Northland Neighborhoods, Inc.  
Bridging The Gap - Housewarming  
weatherization project

*Ruskin Neighborhood -Bridging the Gap*

***Task 4: Work with MARC and City staff to complement EWKC workforce development activities with existing improvement-contractor networks and initiatives -***

**Result 4:** MEC played an extensive role participating in and complementing EWKC workforce development activities including:

- Organization of workforce development opportunities directly connected to the grant
- Provision of training under the MARC Green Jobs Pipeline
- Provision of training with funds from other sources

**a) Organization of workforce development opportunities directly connected to the grant:**

**Customer Service Representatives** - MEC worked with the Full Employment Council and the University of Central Missouri to train 18 Customer Service Representatives including representatives from each of the EWKC targeted neighborhoods. In addition to basic training for the field, MEC provided the CSR's with BPI training and ongoing training regarding sales and marketing, the Green Compass / Surveyor and Salesforce software and other training related to their roles.

**Energy Auditors and Retrofit Contractors** - MEC provided BPI testing and certification, orientation and mentoring programs for new contractors, as well as enhancement programs including: Healthy Homes for Energy Practitioners, Lead RRP, and Section 106 Review. 10 training scholarships were directly provided by EWKC for participation in MEC's Home Performance contractor training and certification. MEC also organized continuing education programs for existing contractors in sales and marketing, Green Compass / Surveyor software and modeling, combustion safety, and mold remediation.

**b) MARC Green Jobs Pipeline** - In addition to its program management and community outreach roles in EWKC, Metropolitan Energy Center received a separate EWKC Workforce Development grant through the Mid-America Regional Council Green Jobs Pipeline program. With these funds, MEC trained and certified 84 unemployed or underemployed workers, placing 39 of them in jobs relating to the field. In addition, MEC assisted 43 businesses related to the energy efficiency field through training and certification of their employees.

The training under the MARC Green Collar Jobs grant included :

residential energy auditing	commercial energy auditing
weatherization installation	deconstruction contractor
reclaimed lumber processing	

The final project outputs on number of people trained and placed and number of businesses assisted under MEC's MARC Green Jobs Pipeline grant are as follows:

INDIVIDUALS TRAINED, CERTIFIED, and PLACED	Target Goal	Total to-date (calculates)
Number of Trained Workers	86	84
Number of Business Assisted	30	43
Number of Individuals Placed	60	39
Number of Certified Workers		84

**b)1. Weatherization Technician:**

> **Trained Weatherization Technicians** - MEC trained 51 Weatherization Technicians in eight distinct Home Performance Training workshops under the EWKC Workforce Development Program. In addition to learning Building Science, Heating and Cooling Appliances and Weatherization Techniques, the trainees

also were invited to participate in EPA Lead RRP (Renovation, Repair, and Painting ) training and certification and the Healthy Homes for Weatherization Technicians course developed by Children's Mercy Hospital as local training provider for the National Center for Healthy Homes. 31 individuals also received Lead RRP certification funded by the EWKC Workforce Development grant. The Healthy Homes for Weatherization Technicians was provided pro bono to MEC's Home Performance trainees on a periodic basis throughout the grant period.

> **Combustion Workstation** - As a result of EWKC Workforce Development Program investments, a Combustion Training Workstation has been developed to teach students to observe and diagnose a number of combustion safety and energy efficiency issues that are common in Kansas City area homes.

The lab is equipped with a natural draft furnace, an 80% efficiency furnace, and a 90% efficiency furnace. Each furnace can be fired during a class and the instructor can manipulate a series of actuators that open and close dampers in the heating ducts simulating a range of conditions in the home, including duct blockage and negative air pressure. Since constructed, the lab has been utilized both as a teaching tool and as a testing tool, to determine how well students have learned their diagnostic skills before they are certified to work in people's homes.

In addition to the furnaces and actuator system, the Lab includes both operating and cut-away hot water heaters to teach the structure and functioning of the hot water heaters and the combined effects of furnaces and hot water heaters on pressure and indoor air quality. *(See photo of the Combustion Workstation attached.)*

> **Table-Top Workstations** - With EWKC Workforce Development funds, a series of modules have been created to teach insulation of joists, window caulking and weather-stripping, attic hatch insulation and other weatherization techniques. The training modules were constructed according to specifications outlined by the DOE's National Renewable Energy Laboratory for training Retrofit Installers, Crew Leaders and Energy Auditors under their new job classifications and position the Metropolitan Energy Center to be approved as a testing and training site for BPI and LIWAP programs that follow the NREL guidelines.

> **Community Service** - As a component of each workshop, trainees received hands-on experience by weatherizing houses that were being redeveloped by local community development corporations, including: Ivanhoe Neighborhood Association, Westside Housing Organization, Blue Hills Community Services, the Housing Authority of KC-Youthbuild Program and Neighborhood Housing Services. MEC Training Program provided free labor and a supervisor/instructor while its community development partners provided materials. This kind of collaboration invests in the redevelopment of Kansas City's neighborhoods at the same time that individuals are learning job skills.

## **b) 2. Commercial Energy Auditor:**

> **Scholarships for AEE Certified Energy Auditor (CEA)** - Metropolitan Energy Center committed to providing partial scholarships for ten individuals to complete the coursework and certification exam for the American Association of Energy Engineers "Certified Energy Auditor" designation. To receive the scholarship reimbursement, individuals not only had to obtain the certification, but also contribute a pro bono energy audit on a commercial or institutional building owned by a Kansas City not-for-profit organization.

While ten individuals were approved for scholarships, only six completed the AEE training and certification process and the pro bono energy audit within the time allotted. In addition to six individuals certified for commercial energy auditing, this program produced six additional energy audits for non-profit

organizations, some of which implemented the recommended energy improvements under the EWKC program. The participating energy auditors have since been able to expand their businesses to include energy auditing for small commercial and multi-family buildings.

**> TREAT and Building Compass Software Training Program** - As another step in equipping energy auditors to work with small commercial and multi-family structures, MEC contracted with Performance Systems Development (PSD) to conduct a training in TREAT and Building Compass: its energy efficiency modeling and reporting software programs for multi-family and small commercial structures.

This training turned out to be an extremely valuable continuing education opportunity for some of the Kansas City area's more experienced residential energy auditors. Not only did the training introduce or enhance participant understanding of the software tools, it also walked participants through a step-by-step process of conducting an energy analysis in complex multi-family and commercial structures. 12 people participated, of those, 9 have since begun conducting commercial and multi-family audits. In addition, trainees conducted hands-on auditing and diagnostic work on the buildings of two community-serving organizations: Community LINC, a transitional housing program for homeless families and the Anita B. Gorman Conservation Discovery Center, housing information and outreach services of the Missouri Department of Natural Resources.

### **b)3. Deconstruction -**

**> Deconstruction Worker Training** - MEC originally proposed to add a 2-day Deconstruction Worker Training course to its existing Environmental Remediation Worker Training programs, funded separately by the Environmental Protection Agency (EPA) and the National Institute for Environmental Health Sciences (NIEHS).

Realizing the over-funding of Deconstruction Worker Training under the EWKC Workforce Development Program, the three agencies funded for Deconstruction programs (MCC, Kansas City, KS Community College and MEC) came together to work out a common strategy for advancing Deconstruction and Building Materials ReUse in the metropolitan area. The result was a coordinated strategy including curriculum development (implemented by MCC), Deconstruction Worker Training (implemented by KCKCC in conjunction with MEC's Minority Worker Training Program) and Deconstruction Contractor Training (implemented by MEC in coordination with KCKCC's Worker Training). *(See photo of Deconstruction Worker and Contractor hands-on project attached)*

The products of this collaboration are:

- Kansas City piloted a national curriculum for Deconstruction Worker and Contractor Training for the Building Materials ReUse Association (BMRA).
- In return for investing in this curriculum development, the three participating institutions will have be able to utilize the BMRA curriculum without cost in perpetuity
- 9 contractors participated in the Deconstruction Contractor training and have begun to participate in Deconstruction bid opportunities.
- Contractor built relationships with Deconstruction Workers trained through KCKCC's program, resulting in a series of job placements since.

**> Create a Reclaimed Lumber Processing Facility** - In response to the obvious gaps in the local deconstruction market, MEC decided to launch a Reclaimed Lumber Processing Facility, that would receive lumber from deconstructed buildings and process it for productive reuse.

With support from the EWKC Workforce Development Program, the Metropolitan Energy Center planned and equipped the start-up for the Reclaimed Lumber Processing Facility, that will receive lumber from deconstructed buildings, de-nail it, clean it, cut it to regular lengths and coordinate its resale (at higher prices) to furniture makers, architectural design firms, remodelers, and other potential end-users.

At a fundamental level, this is a process of restoring value to the wood and returning it to productive use. The resale of lumber to end-users offsets the higher cost of deconstruction on the front end, producing an economic incentive to harvest wood from dilapidated buildings, rather than simply throwing it in the landfill. Building materials reuse not only conserves building materials and landfill space, it also conserves the energy embedded in the harvest, milling, transport, and sale of those materials. MEC's business plan projects 84,000 board feet of lumber processed and reused once the facility is fully operational. Based upon the EPA's Building Materials Outcome calculators (<http://www.epa.gov/cleanenergy/energy-resources/calculator.html>, et al.) this will result in 103,146 KWH energy conserved and 92 tons of CO<sub>2</sub> emissions diverted.

With support from the EWKC Workforce Development Program, MEC developed a business plan, purchased start-up equipment, established two processing facility locations, received and processed our first batch of lumber. Seven training graduates from the Deconstruction Worker and Deconstruction Contractor programs funded under the grant were recruited for 12 hours of training in processing reclaimed lumber. Three were hired to begin the Processing Facility.

#### > "ReClaim KC - Next Steps"

With extended funding from the EWKC Workforce Development Program, the Metropolitan Energy Center took several more steps in the development of the Reclaimed Lumber Processing Facility during the month of October, focusing activity on the project objectives:

- Workforce Development: To continue to develop the workforce for Kansas City's emerging deconstruction and reclaimed lumber processing industries.
- Business Development: To provide visibility and support for designers and craftsman that utilize reclaimed wood products in the Kansas City area
- Market Development: To stimulate and organize the market for reclaimed lumber in Kansas City

To achieve these project objectives, MEC partnered with a variety of local makers, designers, and distributors to provide the Reclaim KC staff with over 40 hours of professionally led, hands-on training. We also hosted two community events- one, a hands-on building workshop, and the other, an expo featuring makers and designers who use reclaimed materials in a variety of ways.

- **Workforce Development - a) Upskill Training - Oct 22-25, 2013**

Reclaim KC worked with Ryan Bennett and Claire Willis of Deadleaf Designs, LLC to offer expert training in advanced tools and techniques used to restore and add value to reclaimed wood to ten trainees, including our three Reclamation Specialists, our Reclamation Team Lead and 6 individuals recruited from the community. Below is a schedule and description of the 10 hours of training Deadleaf provided to RKC staff:

Tuesday	Shop setup: Tool identification, safety, workflow, basic woodshop design. Basic plan reading. Special considerations when working with reclaimed.
Wednesday	Preparing wood: De-metaling. Squaring and cutting. Jointer, table saw, miter

	saw, planer.
Thursday	Assembly & laminating. Clamping & Glue Up.
Friday	Surface and edge finishing: Overhead drum sander, shaper, router. Natural finishes.

Trainees learned proper, safe operation of the following tools and equipment:

- Handheld Metal Detector Wand
- Table Saw
- Miter Saw
- Jointer
- Benchtop Planer
- Overhead Drum Sander
- Oscillating Palm Sander
- Biscuit Joiner
- Bar/ Pipe clamps
- Dust collection equipment

In addition to the tool & equipment skill training, Deadleaf taught the following basic shop skills:

- Shop Setup: Tool and workbench construction, arrangement, and use.
- Plan reading and writing for simple product fabrication.
- Wood characteristic identification.
- Glue up/ laminating techniques.
- Hand sanding.
- Finishing with natural materials (linseed and tung oils).

In addition to 10 hours of in-shop instruction by Deadleaf staff, each trainee spent an additional 30 hours of hands-on skill application in the workshop, even helping to lead the Community DIY Furniture Building Event, hosted on October 26, 2013.

**Quick Stats:**

# trained:	10
# hours shop training per trainee:	10
# hours hands-on skill building per RKC staff trainee:	30+

- **Workforce Development - b) Community Do It Yourself Furniture Building Event:** Oct 26, 2013  
8:30 am -4:30 pm

On October 26th, Deadleaf Design staff led 5 community members and 3 RKC staff gathered at 815 Woodswether Rd to build small projects from reclaimed antique softwood, donated by John Peterson, sourced from an 1892 warehouse in Leavenworth, KS. During this event, RKC staff helped supervise tool stations on which they had been trained the previous week. Community members and trainees constructed furniture based on Deadleaf's adaptable designs, and one participant even featured his work in the Reclaimed Expo.

**Quick Stats:**

# attending:	8
\$ value of reclaimed lumber donated :	\$1,600

- **Business Development - Reclaimed Expo & Open House: Oct 29, 2013**

100 community members, makers, and designers attended the Reclaimed Social & Expo. DRAW Architecture + Urban Design, 360 Architecture, Cinder Block Brewery, and others joined forces to help Reclaim KC celebrate local artists, furniture makers, and designers who feature reclaimed wood materials in their project at the Faultless Event Space, which itself is refurbished in reclaimed materials.

**Quick Stats:**

# of attendees:	100+
# exhibitors:	7
# sponsors:	6

- **Market Development - Marketing & Outreach**

MEC took two main approaches to marketing and outreach as market development tools. The first was to develop a logo and brand attractive to potential RKC customers, related marketing materials, and a web page to host multimedia documentation of the training, events, and materials, and a facebook page to leverage social media. The web address is: [www.reclaimkc.org](http://www.reclaimkc.org). The facebook page is at [reclaimkc.org](https://www.facebook.com/reclaimkc.org).

The second was to produce a versatile photo/ video marketing tool documenting and narrating the program activities. The video is hosted at:

<http://www.youtube.com/watch?v=7ZhA0C3hzeM&feature=youtu.be>

Analytics for the web page are still under development, but the Facebook page generated 125 likes in less than 20 days, and was instrumental in driving awareness and registration for events.

**b)4. Training Scholarships -**

**> Fund certification training or state license fees that will lead directly to employment opportunities -**

Scholarships were awarded to 5 individuals. These 5 scholarships covered the cost for certifications or state licensing making these individuals eligible for jobs requiring those certifications. These scholarships led directly to job placements or to promotions for underemployed individuals in residential energy auditing, lead abatement, asbestos abatement, hazardous material hauling, and environmental inspection.

**c) Provision of trainings with funds from other sources -** MEC provided training in Lead Abatement, Asbestos Abatement, hazardous materials handling, Lead RRP, OSHA 10-hour Construction Safety, and Forklift Certification. As these skills and certifications are important for individuals interested in deconstruction, MEC collaborated with Kansas City, KS Community College and Metropolitan Community Colleges to develop model national curriculum in deconstruction in conjunction with the Building Materials Reuse Association and to pilot test it in Kansas City.

MEC's remediation and worker safety training programs provided extensive leverage for EWKC Workforce Development Programs and a rich menu of training opportunities for workers and business owners in the energy efficiency field.

**Task 5: Work with MARC and City staff to assist in the evaluation of marketing and grassroots service delivery -**

**Result 5: Continuous Feedback and Learning -** MEC engaged in continuous dialog with MARC and City staff to evaluate and adapt marketing and service delivery throughout the EWKC program. This dialog

addressed communication gaps and bottle-necks in retrofit processing and resulted in significant changes to the rebate and incentive structure, community outreach strategies, and the terms of the loan program.

***Task 6: Work with City staff to develop a water efficiency component -***

**Result 6:** MEC worked closely with City staff to plan the RFP for the water efficiency component. Once Bridging the Gap was selected to provide services, MEC CSR's met weekly with Bridging the Gap staff to develop strategies for jointly promoting energy and water efficiency projects in the EWKC target areas and elsewhere in the City. These sessions resulted in coordinated events in each target area, typically in collaboration with the local homes or neighborhood association to promote EWKC programs. Also, the close collaboration between MEC and Bridging the Gap enabled MEC CSR's to advertise and distribute water efficiency kits and toilet installs in targeted neighborhoods. In addition, MEC Training Department staff helped Bridging the Gap identify and recruit plumbers and plumbers helpers to assist with the project.

***Task 7: Develop educational schemes, props, and materials for Project Living Proof -***

**Result 7:** MEC developed specific educational stations at Project Living Proof demonstrating insulation types, window sash insulation, attic insulation, foam, as well as a host of high-efficiency or renewable mechanicals, including ground source heat-pump, solar thermal, solar photovoltaic, a heat exchanger, three kinds of hot water heaters and so forth. In addition to specific features of the house, EWKC marketing materials, articles and contact information were prominently displayed, allowing visitors to the house to learn about EWKC and participate.

Throughout the EWKC program period, Project Living Proof hosted numerous businesses, neighborhood and homeowner associations, schools and other organizations for tours, receptions, meetings and retreats. Participating individuals learned about residential energy efficiency through demonstrations of the various systems in the house, presentations on energy efficiency topics, and presentations about EWKC. EWKC literature was displayed prominently at Project Living Proof throughout the program period.

Some of the groups utilizing Project Living Proof during the project period included:

American Society of Interior Decorators	Building Operators Certification class
Children's Mercy Hospital Healthy Homes class	Commercial Energy Analyst training
Cultivate KC and the Urban Grown tour	ECOS youth program
Efficiency First Chapter meetings	Engineers without Borders
Grandview High School Green Tech Students	Greater KC Chamber of Commerce -
Green Impact Zone residents	Centurions Leadership Program
GreenWorks KC	Great Plains Chapter of the American
Heartland Renewable Energy Society	Society of Home Inspectors
HUD Sustainable Housing Conference	Historic Section 106 training
INROADS Board	Ivanhoe Neighborhood Council
Kansas City Art Institute students	KC Greens Committee
Kansas City Regional Clean Cities Coalition	Ewing Marion Kauffman Foundation staff
Landis+Gyr	MARC Sustainable Communities
Master Gardeners	MRI Global staff
Missouri Energy Initiative Conference	MO Public Service Commission
Paseo Academy students and faculty	Southtown Council
Sierra Club	The Troost Alliance
Troostwood Neighborhood Association	University Extension with the 4-H
William Chrisman School	Women in Energy Efficiency



YMCA camp  
Westside Housing Organization  
US Dept of Homeland Security Immigration Services facility staff  
Westar

As Project Living Proof housed KCP&L's SmartGrid project demonstration, KCP&L staff also conducted tours and presentations at the house, including a meeting of the KCP&L Board, staff retreats, KCP&L Energy Camp participants, and other groups.

**Task 8: Implement HEAL Pilot Project -**

**Result 8:** Establish an employee based concierge/customer service program in conjunction with the Clinton Foundation's Building Retrofit Home Energy Affordability Loan program (HEAL).

The Home Energy Affordability Loan Program (HEAL) is a residential energy efficiency retrofit program organized and delivered through the workplace, providing energy auditing, energy efficiency education and recommendations to the employees of participating public, private and nonprofit employers. Retrofit improvements are financed through a low-interest loan that is paid back on an employee's paystub.

Metropolitan Energy Center assumed responsibility for implementing HEAL Pilot Project in Kansas City, testing the concept of HEAL and hopefully, developing a system of implementation that can later be brought to scale. The Pilot Project, funded through EWKC began in October and continued through March, 2014.

For budget reasons and to ensure that the process and program goals of HEAL were closely followed, MEC opted to perform the energy audits in the Pilot Project, rather than contracting them out.

Four employers participated in the HEAL pilot project. These are:

- **BNIM** - a leading architecture and design firm in Kansas City
- **City of Independence, MO** - One of Kansas City, MO's neighbors to the east and the fourth largest municipality in Missouri (after Kansas City, St. Louis and Springfield).
- **Posty-Cards** - a small, family-owned greeting card manufacturing company that has won accolades for the LEED Platinum renovation of its manufacturing facility
- **Neighborhood Housing Services of Kansas City** - a non-profit community development corporation and the primary lender for the EWKC Loan Program and the HEAL pilot project

A fifth employer, **Boulevard Brewery**, initially agreed to participate, but was sold to a Belgian firm and backed out of the HEAL Pilot just before the sale.

74 energy audits were accomplished during the HEAL Pilot Project, resulting in 40 retrofit projects completed or pending, including 24 utilizing HEAL loan funds. BNIM and Posty Cards both provided strong employer support for the program and produced most of the activity in the Pilot Program. By the end of March, eleven HEAL projects were completed. Completed projects resulted in:

therms Saved	kWh saved	mmbtu saved	% avg energy savings
7,221	7,622	748	53%

While the HEAL pilot sample is small, it appears that the availability of the loan funds allowed participants to take on larger projects, including furnaces and hot water heaters, that typically are not part of Home Performance with Energy Star rebate programs.

**Additional Employers:** The following employers have expressed interest in participating in HEAL after the Pilot Program is complete:

MRI Global, Inc.

Faultless Starch

Children's Mercy Hospital

Service Management Group

MEC staff are following up with these and other employer prospects to further develop the program.

**Speaking Invitations, grant prospects and other recognition:** MEC staff have been invited to speak at the following venues regarding the HEAL program:

- US Dept of Housing and Urban Development - Healthy Homes Conference - Region 7 & 8: March 26, 2014
- Affordable Comfort Inc. 2014 National Home Performance Conference - March 29 - April 1, 2014
- U.S. Green Building Council (USGBC) National Conference - October 2014.

In addition, Children's Mercy Hospital Center of Environmental Health has included the Kansas City HEAL program in a research proposal on indoor air quality submitted to the Environmental Protection Agency.

These invitations and developing partnerships demonstrate considerable interest in the HEAL program.

**Objective 3: Assist in development and finalizing the financial services component**

**Tasks 1 & 2: *Work with City staff to identify lender partners, to develop a financing mechanism and a Loan Loss Reserve (LLR) Fund -***

**Results 1 & 2:** MEC and City staff met with representatives from local banks, credit unions and other lending entities to identify potential partners as well as to understand what lenders needed in order to participate in the EWKC program. Despite initial enthusiasm among some local bankers, none of the banks responded to the initial RFP.

The City of Kansas City, MO also set aside Loan Loss Reserve Funds for two credit unions that agreed to participate: KC Terminal Employees/Guadalupe Center Credit Union and Mazuma Credit Union. Loan Loss Reserve Funds were designed to lower default risk as an encouragement to make energy efficiency loans available to their members. However, the credit unions did not aggressively market the program and no energy efficiency loans were closed in connection with the EWKC program.

While there are surely many factors involved with the response of mainstream lenders to the EWKC program, including the lack of familiarity and local underwriting standards for energy efficiency improvement loans, the primary problem was probably that these initiatives were rolled out in the midst of the recession and that, in stark contrast to the lending activity prior to the collapse of the housing markets, lending institutions had become extremely conservative about making any kind of loans connected to real estate.

In their response to the RFP, the Neighborhood Housing Services of Kansas City (NHS) indicated that they would be interested in participating in a Revolving Loan Fund, but not in the Loan Loss Reserve Fund. After further discussions, City and MEC staff settled upon Neighborhood Housing Services of Kansas City (NHS) as the primary lending institution in the EnergyWorks KC program.

**EWKC Loan Program -** Neighborhood Housing Services of Kansas City has a long history serving the communities of Kansas City, including the EWKC targeted neighborhoods. The development of an energy efficiency loan program fits well with NHS' nonprofit, community development mission and complements their existing home improvement loan products.

As described in Attachment A, separate loan terms were developed for single family, commercial and multi-family properties. Funds were set aside for an Interest Rate Buy-Down, allowing 0% interest loans in target neighborhoods and 3% loans on a City-Wide basis.

Within the targeted neighborhoods, for-profit commercial properties and single family homes were eligible for loans up to \$15,000, however, non-profit institutions were eligible for loans up to \$50,000. Multi-family properties were eligible for loans up to \$3,000 per dwelling unit or \$90,000 per multifamily complex. The term for these loans was 15 years at 0% interest. A minimum FICO score of 580 was required. Liens were filed for amounts over \$5,000.

In other neighborhoods of Kansas City, for-profit commercial properties and single family homes could obtain unsecured loans of less than \$5,000, but could obtain secured loans up to \$15,000. Interest rates were 3% for a 15 year loan. Other loan terms remained the same as those for the target neighborhoods.

The EWKC Loan Program became available April 4, 2012. It became clear that the lien requirement for loans over \$5,000 was a deterrent to the program. In October 2012, all loans became unsecured. This helped to spur the use of the EWKC loan funds.

***Task 3: Finalize all written procedures, lines of communication and written materials in order to implement the financing component -***

**Result 3:** MEC provided input in finalizing all written procedures to implement the EWKC Loan Program and provided staffing to work with Neighborhood Housing Services of Kansas City throughout the project to process EWKC Loan applications and to participate in the EWKC Loan Program Review Committee.

***Task 4: Work with City staff and utility partners to develop a rebate mechanism, including written procedures and materials, in order to implement the rebate component. -***

**Result 4:** In close partnership with the City of Kansas City, MO, MEC staff played a major role in crafting the rebate and financing incentive structure of EnergyWorks KC.

**Rebates and Incentives -** After thorough discussion and consultation with the major utilities and representatives from area banks and credit unions, the initial rebate and incentive structure for EWKC was proposed as defined in Attachment A (see Attachment A).

Highlights of this structure were:

Residential Rebates	
Energy Audit	Scholarships for full cost of initial audit up to \$500 for individuals at 80% of Area Median Income or below
Energy Efficiency Improvements	\$1,000 rebate for improvements resulting in 15% energy savings or more (on top of available utility rebates)
Commercial Rebates	
Energy Audit	Scholarships for nonprofit institutions for the energy audit, up to \$1,500
Energy Efficiency Improvements	Up to \$3,000 available for improvements resulting in 15% savings or more

In mid-2012, in order to stimulate demand and accelerate the pace of energy efficiency improvements, the decision was made by City and MEC staff to enhance the rebate structure for property owners as follows (enhancements highlighted):

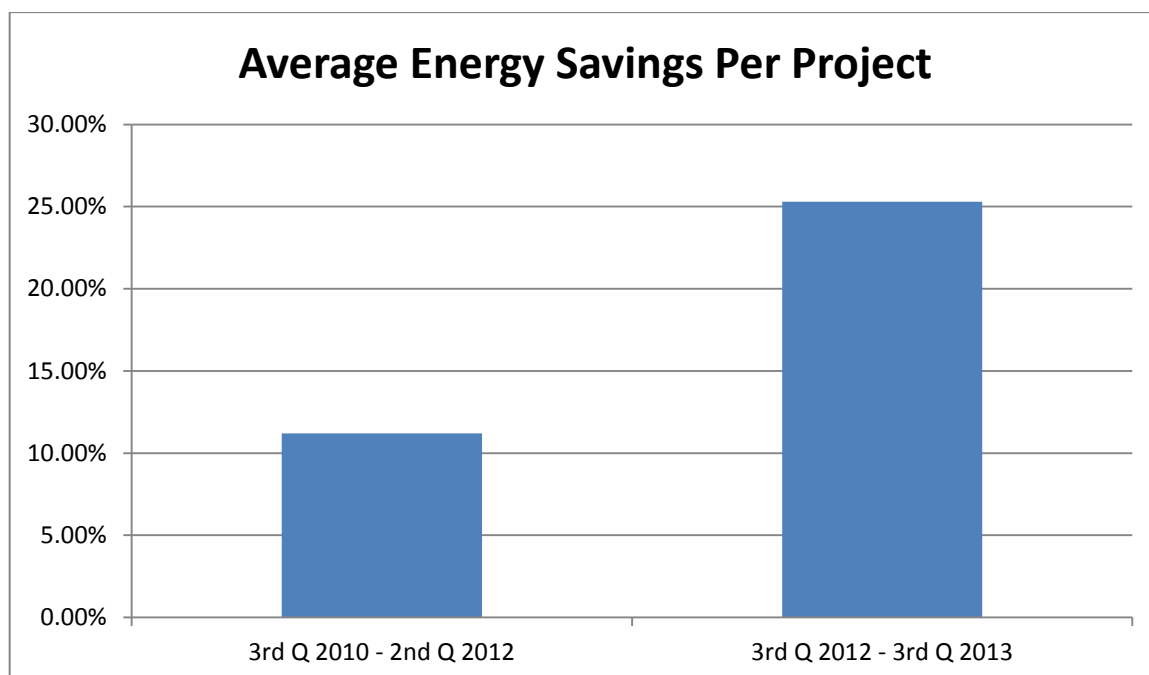
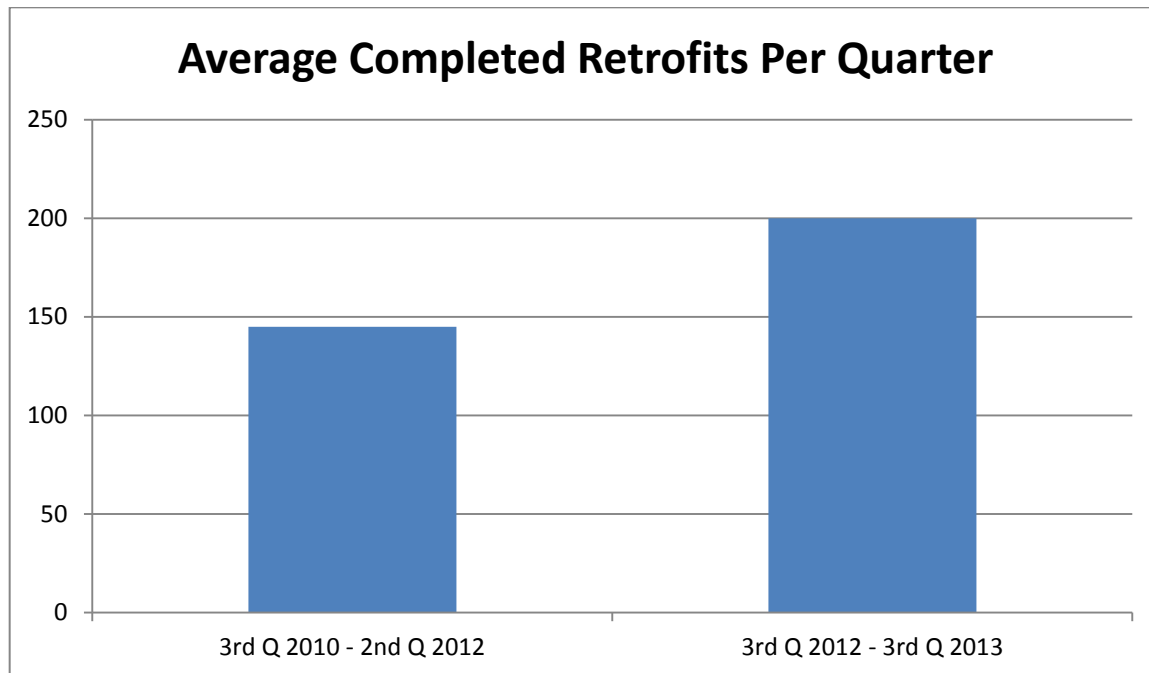
Residential Rebates	
Energy Audit	Scholarships for full cost of initial audit up to \$500 for individuals at 80% of Area Median Income or below
Energy Efficiency Improvements	\$1,000 rebate for improvements resulting in 15% energy savings or more (on top of available utility rebates); an additional \$1,000 for improvements resulting in 30% savings
Commercial Rebates	
Energy Audit	Scholarships for nonprofit institutions for the energy audit, up to \$1,500
Energy Efficiency Improvements	Up to \$3,000 available for improvements resulting in 15% savings or more; an additional \$3,000 for improvements resulting in 30% savings

In addition, the Energy Analyst could receive the following bonuses:

- \$100 for attaining at least 20% energy savings
- Additional \$100 for attaining at least 30% energy savings

This enhanced rebate structure was announced at the Midwest Home Performance with Energy Star Contractor meeting on August 23, 2012. Attachment B, the "Revised Financing and Incentives Package" is a handout from that meeting.

Based upon the Energy Efficiency Retrofit Data for this period, the enhancements added in 2012 had a strong stimulative effect for residential projects.



As described in the tables above, from the launch of the EWKC program in the third quarter of 2010 through the second quarter of 2012, an average of 145 retrofit projects were completed per quarter, resulting in an average energy savings of 11.2%\*. Beginning in the third quarter of 2012 through the close of the program, an average of 200 retrofit projects were completed per quarter resulting in average energy savings of 25.3%.

The additional incentives announced in 2012 increased the number of retrofits completed as well as, more significantly, the average energy savings per retrofit project achieved and thus contributed greatly to the success of the program.

\* Note: The decision was made in 2012 to apply the rule of 15% savings or more across the entire retrofit portfolio, rather than requiring every single project to meet this savings threshold. As a result, projects that had been rejected early in the program because their savings were less than 15% were now allowed. This explains how it is possible for the average savings for the early period of the program to be less than 15%. Since this policy of applying the 15% rule across the entire portfolio remained in place through the end of the program, the increase in average savings is nevertheless striking.

#### **Objective 4: Implement the marketing program in the targeted neighborhoods**

***Task 1: Develop community marketing partnerships with community organizations that serve the residents of the neighborhoods. Send the MEC Customer Service Representatives into the neighborhoods.***

**Result 1:** The Customer Service Representatives assigned to target neighborhoods assumed the responsibility for outreach to homeowners, neighborhood associations, churches and other organizations within their assigned areas. CSR's attended neighborhood and homeowner association meetings, community health and service fairs and the meetings of various associations. Where possible, CSR's made presentations about energy efficiency and the EWKC program, distributed EWKC literature and marketing materials and asked people who were interested in finding out more about the program to sign up. CSR's would follow up with those that signed up or otherwise expressing interest to get them started in the program, helping the homeowner to identify an energy analyst that they wished to work with to obtain an energy audit of their home. CSR's would continue to work with and trouble-shoot for customers as they made their way through the process of energy audit, application for rebates, and installation of energy efficiency improvements.

*As a result of media advertising for EWKC, many customers also contacted MEC offices directly to inquire about the program. These customers were assigned to a customer service representative who would serve as their liaison to help them move through the audit, installation and rebate process.*

*In some instances, CSR's brought energy auditors who were interested with them to neighborhood meetings to assist in the presentation on energy efficiency and to build direct relationships with potential customers.*

*Also, workshops proved to be a key strategic driver to engage qualified leads, assist them to schedule energy assessments, and move them through the process to get work performed towards a 15% or more energy efficiency. The following gives a sampling of workshops that were conducted:*

EWKC hosted an Energy Savings Workshop specific to the Green Impact Zone, a targeted neighborhood, on October 27, 2012. MEC welcomed participation from 5+ auditors/contractors and Bridging the Gap. 33 homeowners participated and all signed up for an energy assessment. The workshop featured a welcome station, a PowerPoint presentation, and five stations for homeowners to engage in the program including:

- f. Qualify for a free energy assessment based on income requirements
- g. Talk to auditors and schedule an assessment
- h. Sign up in the Compass portal
- i. Understand the loan program and apply for a loan

- j. Meet with Bridging the Gap and received a water kit

*In addition to the targeted Green Impact Zone workshop, Energy Savings Workshops and events occurred in more sponsored locations including:*

<i>Date</i>	<i>Event</i>	<i># of households signed up</i>
<i>October 12, 2012</i>	<i>Icebreakers college hockey at the Sprint Center</i>	<i>31</i>
<i>October 18, 2012</i>	<i>Gymnastics at the Sprint Center</i>	<i>16</i>
<i>October 24, 2012</i>	<i>NBA Wizards vs Heat at the Sprint Center</i>	<i>43</i>
<i>November 11, 2012</i>	<i>Gospel Salute to Buck (a Negro League Baseball icon) at the GEM Theater</i>	<i>24</i>
<i>November 13, 2012</i>	<i>It's all Jazz at the GEM Theater</i>	<i>5</i>
<i>November 17, 2012</i>	<i>Annual Gearing Up for Technology &amp; Health Fair at W.E.B. Dubois Learning Center</i>	<i>100</i>
<i>December 15, 2012</i>	<i>Toys for Tots at Gregg/Klice Community Center</i>	<i>42</i>
<i>December 18-19, 2012</i>	<i>City Hall</i>	<i>80</i>
<i>January 16, 2013</i>	<i>Vine Street Neighborhood</i>	<i>Data not available</i>
<i>January 21, 2013</i>	<i>Santa Fe Neighborhood Association</i>	<i>Data not available</i>
<i>January 26, 2013</i>	<i>Oak Park Neighborhood Association</i>	<i>Data not available</i>
<i>January 30, 2013</i>	<i>Wendell Phillips Elementary School</i>	<i>16</i>
<i>February 18, 2013</i>	<i>Washington Wheatley Neighborhood Association</i>	<i>16</i>

*Additional neighborhood outreach included:*

*Ruiz Library presentations every third Thursday at Ruiz Library - 20 households.*

*Stone Lion Puppet Show at the Roanoke Community Center – 3 households*

*Urban Summit, generating 89 leads.*

*EPA Sustainable Cities conference.*

***Task 2: Develop relationships with business associations, Chamber of Commerce, and other such organizations to deliver commercial marketing message to the target areas.***

***Result 2:*** MEC's Commercial Customer Service Representative met regularly with the Central Industrial District Association, the prime business association in the one predominantly commercial EWKC target area. Also, the Commercial CSR met with business associations, church coalitions, Building Owners and Apartment Managers, charter schools, and the Kansas City, MO School District to present EWKC and discuss opportunities for businesses, institutions and commercial building owners in the program. As a result of this work, 116 commercial buildings received energy efficiency retrofits, resulting in a 25.1% energy savings.

In addition, the Commercial CSR worked with Community LINC, MainCor and the Anita Gorman Conservation Discovery Center to provide buildings for training commercial energy auditors.

**Objective 5: Deliver services to residential and commercial buildings**

***Task 1: Process incoming inquiries and applications for program -***

***Result 1:*** MEC handled many thousands of inquiries and applications over the grant period, describing the EWKC program to prospective customers, energy auditors and contractors, as well as social service agencies, community organizations, environmental groups, and other interested parties.

***Task 2: Complete residential and commercial audits and retrofit projects -***

***Result 2:*** 4,326 residential and commercial audits were conducted in the Kansas City metropolitan area under the EnergyWorks KC program. These energy audits resulted in 2,819 completed projects, of which 116 were commercial or institutional buildings, 2,703 were residential. A total of 5,230,303 kWh and 678,488 Therms were saved on these projects. Total energy reductions on residential projects was: 18.5%. On commercial/institutional projects, energy usage was reduced by 25.1%.

***Task 3: Organize and complete block weatherization projects in the target neighborhoods, to the extent feasible -***

***Result 3:*** Neighborhood Block Weatherization projects proved to be cumbersome approach to performing the energy retrofits, because it required the close coordination of the entire block and work did not proceed until the entire block agreed to participate. Customer Service Representatives did not find homeowners who were interested in participating in block weatherization projects. As a result of feedback from participating neighborhoods, the strategy was dropped in favor of individual homeowner retrofits.



## **5. CHALLENGES**

The primary challenge that the Metropolitan Energy Center faced in implementing EnergyWorks KC was the sheer magnitude of the project and the multi-faceted roles that MEC played in the program. EnergyWorks KC required that MEC grow rapidly in staffing and organizational capacity. The organization is left with greater organizational capacity, as manifested by a stronger accounting system, more formal policies and procedures, and more sophisticated office technology. The volume of energy audits and retrofit projects accomplished through EnergyWorks KC has also developed a very experienced, well-trained contractor base in Kansas City, with a core of effective companies that are invested in energy efficiency for the long term.

A second challenge to implementation occurred as a result of the decision to contract with PSD for Green Compass / Surveyor software. At the start, Green Compass / Surveyor was barely past its "beta" phase, but the software was rushed to the market in response to the rapid increase in government funding for residential energy efficiency programs. It took about a year before the glitches and compatibility issues with other software had been sufficiently resolved to allow the modeling/tracking/reporting functions of Green Compass / Surveyor to be functioning as intended. Initially a source of many complaints from energy auditors, Green Compass is now a standard and most auditors have become accustomed to working with it.

As mentioned elsewhere, the strategy of Neighborhood Block Weatherizations did not work as intended. Coordinating the audits and retrofit projects for every house or most houses in a block proved unwieldy. Homeowners lost patience and were not satisfied with the approach. Instead, auditors and MEC staff shifted focus to individual home retrofits.

While EWKC greatly exceeded its residential retrofit goals, it did not meet its commercial retrofit goals. In retrospect, there are three factors that contributed to this outcome: a) The program was launched and largely implemented during a period of economic downturn at a time when commercial property owners and tenants were cautious about additional investments in facilities and banks were extremely conservative in their loan policies. b) It is possible that the incentives available for commercial retrofit projects was insufficient given the sheer scale of most such projects. That is, that the incentives were not enough to motivate behavior. c) The program also ran up against the split incentive problem in commercial projects, i.e. in many cases, the landlord has no motivation to invest in energy efficiency, because the tenants paid the utility bills.

## **6. SUSTAINABILITY PLANS**

EnergyWorks KC allowed the City of Kansas City, MO; the Metropolitan Energy Center and other organizations to try many strategies to find some that work. This was an invaluable opportunity! Looking forward, the problem is not how to sustain EWKC programs, per se, but how to move a whole industry that is overly reliant on government funding toward a more sustainable, market-driven posture.

Toward this end, the EWKC Loan Program will provide an ongoing resource for financing energy efficiency retrofits in the Kansas City area.

Also, HEAL provides MEC with a potential strategy to continue to grow the energy efficiency retrofit market in the Kansas City area without reliance on government grants.

Another direction for program sustainability is an expansion of awareness and services to other areas outside the Kansas City metropolitan area. As a result of EWKC there is high awareness of residential energy efficiency in the Kansas City Metropolitan Area, at least as compared with surrounding

communities. Kansas City also has developed a seasoned, well-trained workforce. There is much less awareness of energy efficiency opportunities in the smaller cities and towns in other parts of western Missouri. The two major utilities in the area: KCP&L and MGE are interested in expanding the Home Performance with Energy Star program to focus more attention on outlying areas. This provides growth opportunities for the companies that have been developed in the Kansas City Metro Area and will lead to greater momentum around energy efficiency issues on the regional and state level, which will be necessary if the gains made through EWKC are to result in long-term market transformation or policy level change.

## **7. DEVELOPED PRODUCTS**

The initial "EWKC Financing Incentives" and the "Revised Financing and Incentives Package" are identified as Attachment A and B respectively.

Metropolitan Energy Center worked with the City of Kansas City, MO to develop a wide range of marketing and training products in connection to the EnergyWorks KC program. Those products developed specifically by MEC staff include:

Staff Training Manuals  
Website Designs and Information  
Radio interviews  
Neighborhood Flyers  
Powerpoint presentations on EWKC or the HEAL program

Please find attached a sampling of products in formats that could be readily attached and forwarded, including:

- a) EWKC Cold Calling and Powers of Persuasion
- b) EWKC Core Selling Skills
- c) Northland e-blast article, 2-2012
- d) Healthy Homes Presentation - 3-25-14
- e) Northland Lifestyle article - April 2013
- f) Sales and Customer Handbook
- g) Winnwood Flyer

## **Attachment B**

### **Mid-America Regional Council EnergyWorks KC – Final Report**

Contract Number	EECBG-ARRA-OEQ-3
Project Title	EnergyWorks KC
Name of Project Director	Marlene Nagel, Director of Community Development
Team Members	Tom Jacobs, Environmental Program Director Roger Kroh, Energy Conservation Project Manager Victoria Ogier, Workforce Development Project Manager Laura Bogue, Public Affairs Specialist Twana Hall Scott, Green Impact Zone Manager

### **Executive Summary**

Regional energy efficiency efforts led by the Mid-America Regional Council (MARC) achieved the goals established at the outset of the project. Significant achievements were accomplished in areas related to policy development, education and leadership development, demonstration projects and workforce development. In each area, projects were demonstrated to be economically feasible, technically viable and publicly acceptable.

In the policy arena, MARC facilitated the adoption and implementation of new energy efficiency codes in communities covering 73 percent of the region's population. New codes will enable new residences to be, on average, 20 percent more efficient than conventional homes. Further, MARC laid a substantial amount of groundwork to support the future creation of a Property Assessed Clean Energy (PACE) district in the Kansas City area by developing a model ordinance, a program operations manual, and conducting substantial outreach to area communities.

To replicate successes in Kansas City, Mo., MARC funded six high impact demonstration projects. The revolving loan fund in the Unified Government of Kansas City, Kansas and Wyandotte County, for example, will build upon its initial set of loans to fund improvements in 39 homes, many of which are located in disadvantaged communities. Grants to other two other local government agencies and three non-profits will help build the region's capacity and support for future energy efficiency investments.

MARC's efforts notably sought to link workforce development with other energy efficiency investments. Strong partnerships with the three area community colleges, a major university, and two key non-profits proved instrumental in creating and delivering workforce development and job training that exceeded initial goals and expectations. Subgrant awards to six high-impact green workforce training and education projects resulted in 336 individuals trained, 148 individuals placed in employment, and 129 businesses assisted in workforce efforts, incumbent worker training and business development training. The number of individuals trained exceeded initial projections by forty percent, the number of placed individuals reached 106% of target and the number of businesses assisted hit 226% of target.

Public education efforts carried out by MARC extended and reinforced outreach efforts implemented by other project partners. Outreach through regional media outlets, social marketing, the new website, and direct mobile outreach connected MARC with tens of thousands of area residents and businesses.

Several conclusions resulted from collaborative, regional-scale initiatives carried out during the course of the effort. First, an integrative approach linking energy efficiency with other issues such as workforce development, water use efficiency and deconstruction showed impressive synergies, enhancing the overall project impact. It also created community interest in related efforts to reduce soft costs for solar deployment, while expanding the scope of conversations about regional strategies for sustainable development and urban design.

Second, a regional approach added substantial value to the overall effort. While much of the energy improvement investments took place within Kansas City, Mo., there was substantial interest in and support for project goals at the regional scale. A committee composed of regional stakeholders and communities created new points of leadership, stronger partnerships, greater support and understanding about project goals, and expanded regional impacts through investments in efforts in a broader metropolitan geography. The regional consortium of communities built upon previous efforts initiated under the formula Energy Efficiency Conservation Block Grant program. The Regional Energy Efficiency and Conservation Strategy (REECS) committee strengthened the ability of regional EWKC efforts to achieve its goals.

Finally, behavior change at the individual, business and community levels is fundamental to any set of environmental or sustainability initiatives. In EnergyWorks KC (EWKC), clear links between regional and local education efforts created changes in public awareness and understanding that support longer term market transformation for energy efficiency. Moreover, leadership development and neighborhood capacity building carried out by the Green Impact Zone served to further educate community leaders about energy efficiency opportunities.

### **Final Technical Report**

The Mid-America Regional Council (MARC) assumed responsibility in the EnergyWorks KC initiative to help transform the regional energy retrofit market. To accomplish this goal, MARC sought to spread the ideas, processes and practices developed and carried out in Kansas City, Mo. neighborhoods to communities throughout the metropolitan area.

Specifically, MARC was to address six different goals through EnergyWorks KC initiatives: (i) Foster the development of local, regional and state policy to facilitate the expansion of energy-efficiency improvements for buildings; (ii) Develop a regional energy-efficiency improvements education program to promote energy-efficiency improvements for buildings to the general public by making them aware of the benefits from retrofits, the financing and funding options, and the resources available to help them

accomplish the energy efficiency improvements; (iii) Develop a system that provides residents of targeted neighborhoods and others in the metropolitan area who are seeking employment and/or careers, with a path to green jobs; (iv) Develop and implement a process for replicating the EnergyWorks KC model in

other parts of the Kansas City metropolitan area, with a particular initial focus on Kansas City, Kan.; (v) support targeted neighborhoods and other communities by providing training and the transfer of techniques and strategies developed in the Green Impact Zone; and (vi) Work cooperatively with Kansas City, Mo., and Metropolitan Energy Center in support of MEC's development and implementation of a "one-stop-shop" to facilitate access by building owners in the targeted neighborhoods, to energy efficiency evaluations, loans and improvements. Each of these goals was met during the course of the project.

Under the six pillars of the EnergyWorks KC program, MARC's goals and objectives fulfilled three areas: (1) Driving Demand (2) Workforce Development (3) Financing and Incentives.

### Driving Demand

One of MARC's objectives was to develop a public education program to increase the awareness of the benefits of energy retrofits and resources. MARC's marketing vendor, Vireo, developed a public outreach campaign that would take information about energy upgrades to the public and in places where face-to-face conversations could happen. Some of the outreach took place at trade shows and festivals, but the majority of these conversations were at hardware stores, where it was possible to engage citizens who were already interested in — and often, in the middle of — home improvements. In some cases, staff held

36 events, with mobile meetings at a single location three times — one meeting for each phase of the campaign: lighting/furnace efficiency, air sealing and water efficiency.

Social media played a significant role in regional outreach activities. MARC and Vireo used Facebook and Twitter to spread the word about where and when the mobile meetings would take place (usually stressing the giveaways visitors would receive). Social media outreach served to open a dialogue about the human face of energy efficiency — that it's not just good for the environment, but saves money and increases comfort. In most cases, the audience was directed to the Beyond The Bulb website, encouraging individuals to take a survey, learn about and get an energy assessment, and make energy improvements to their home through do-it-yourself (DIY) efforts or an approved energy contractor.

Policy development efforts also played a significant role in driving demand for energy-efficiency improvements. Specifically, communities throughout the metropolitan area adopted the International Code Council's (ICC) 2012 International Energy Conservation Code (IECC). The EnergyWorks KC staff at MARC coordinated a series of meetings over 18 months with local building officials, members of the Home Builders Association, and local design and construction professionals on the costs and benefits of the ICC energy efficiency codes. As a result of these MARC-led discussions, more than 1.4 million, or 73 percent of the 1.9 million people living in the metropolitan area, live in cities that have adopted the 2012 ICC energy code. A second benefit of the effort from the perspective of developers and builders is that these communities now use the most current edition of ICC construction codes. Previously, there was no commonality across jurisdictions with respect to what editions of codes were being used.

### Workforce Development

The EnergyWorks KC program was heavily invested in developing a strong workforce program that would train, certify and place residents in energy retrofit careers. At the start of the program, MARC developed a Green Jobs Taskforce that guided these efforts and enforced strong collaboration between the multiple partners involved. This process led to 336 individuals receiving training. Of those, at least 148 were placed in employment. A majority of the individuals served were unemployed or underemployed, disadvantaged individuals from the urban core.

In 2011, MARC convened the Green Workforce Initiatives Task Force to review existing programs that would support a green career pipeline, identify additional needs and resources for such a pipeline and develop a recommended path forward. At the conclusion of its work, the task force developed a set of recommendations for improvements to the system, including how the EnergyWorks KC grant funds could be invested and developed criteria for selection of grant recipients. The task force comprised members of workforce development organizations, area universities and community colleges, economic

development agencies, nonprofit groups and private businesses. The Green Workforce Initiatives Task Force:

1. Developed strategies and tactics to strengthen the green jobs pipeline in the Kansas City region, including creating a demand for green jobs, providing training and skill development, and connecting people to green jobs.
2. Prioritized those strategies.
3. Established criteria for awarding grant funds.
4. Recommended a structure to evaluate funding requests and a process to award the grant funds.
5. Continued to convene throughout the program to collaborate and discuss status of program activities and green job demand.

Through a grant selection process, MARC identified six organizations within the target area to provide workforce development training programs in support of energy efficiency, water conservation and deconstruction. The goal of these workforce development programs was to put residents of the Kansas City region who are underemployed and unemployed to work in the local community and neighborhoods making energy improvements to buildings.

MARC awarded six organizations with grants ranging from \$49,000 to \$235,000 to ensure participants received the necessary training and skills for energy retrofit careers to work on EnergyWorks KC projects and other green job opportunities throughout the region. Recipient organizations included:

- ☐ Metropolitan Energy Center.
- ☐ Kansas City Kansas Community College.
- ☐ Johnson County Community College.
- ☐ University of Central Missouri.
- ☐ Metropolitan Community College.
- ☐ Full Employment Council.

The most notable outcome of the workforce development program was the collaboration that resulted in a successful, newly developed deconstruction sector. Deconstruction, or the manual disassembly of a building, creates an alternative to conventional demolition practices. Not only is the embodied energy of the building materials within a structure conserved for reuse, deconstruction creates a resource conservation strategy that perfectly complements related investments in building energy efficiency improvements.

Over the course of the program, Kansas City Kansas Community College's Construction Green Up program helped develop a national training curriculum and partnered with Metropolitan Community College and Metropolitan Energy Center to adopt the curriculum metro-wide. Construction Green Up negotiated an agreement with Metropolitan Community College and Metropolitan Energy Center to adopt a national deconstruction and BMRR (building materials reuse and recycle) training standard. That standard was then endorsed by the Building Materials Reuse Association (BMRA), a national industry educational organization. Four individuals participated in the BMRA's Train-the-Trainer program, ensuring that the Kansas City region retains capacity to deliver high-quality training based on a national standard as the industry develops, rather than continuing to rely on outside training consultants.

The Construction Green Up program worked toward developing the local deconstruction and building materials reuse industry by working with the individual contractors and organizations interested in deconstruction, and by hosting two industry social events to raise awareness and foster dialogue about the field. Contractors learned about the benefits of deconstruction and business opportunities that could help advance their business operations and work with cities on demolition projects.

Grant-funded efforts resulted in the creation of two new non-profit start-up organizations. Green Up, Incorporated, a nonprofit partner organization, is designed to advance economic opportunities for all through green collar workforce development and green entrepreneurship. ReClaim KC is focused on deconstruction and reclaimed lumber. Metropolitan Energy Center took several more steps in the development of a reclaimed lumber processing facility and focused activity on the following objectives:

- Workforce development, to continue to develop the workforce for Kansas City's emerging deconstruction and reclaimed lumber processing industries.
- Business development, to provide visibility and support for designers and craftsman that utilizes reclaimed wood products in the Kansas City area.
- Market development, to stimulate and organize the market for reclaimed lumber in Kansas City.

### Financing and Incentives

The most significant work related to financing and incentives under the EWKC program was carried out by the Metropolitan Energy Center, Neighborhood Housing Services of Kansas City, Mo, and the city of Kansas City, Mo. However, each of the demonstration grants served as a financial incentive to advance and transform the market for energy efficiency. For instance, two specific grants below were used to encourage substantial additional investment in energy efficiency by homeowners and congregations.

With a \$65,000 demonstration grant from the EnergyWorks KC program awarded by MARC, the Kansas Chapter of the Interfaith Power and Light (IPL) association showed nine congregations of multiple faiths how easy-to-do energy-efficiency upgrades can reduce energy consumption and cost by more than 19 percent. The IPL conducted training sessions for volunteers from all nine congregations. These volunteers, with direction from skilled tradesmen, then used their training to complete energy retrofits at all nine places of worship. Efforts carried out through these congregations created extraordinary opportunities for community education and engagement as well. IPL worked diligently to recruit willing congregations to carry out energy efficiency improvements. While IPL succeeded in working with nine congregations, they found that many congregations were unable to participate because of their inability to meet matching fund requirements, because the scope of their project constrained their ability to achieve

15% reductions in energy use, or because of other contextual reasons (e.g. facility issues or staffing).

With \$275,000 of demonstration grant money from the EnergyWorks KC program awarded by MARC, the Kansas City, Kan., Board of Public Utilities (BPU) successfully operated the first on-bill revolving loan program for energy-efficiency improvements on the Kansas side of the metropolitan area. A total of 30 homeowners obtained loans and completed energy improvements that reduced energy consumption and costs by an average of 25 percent. As this is a revolving loan program, it will continue long past the end of the EnergyWorks KC grant.

A substantial body of work to develop a PACE, or Property Assessed Clean Energy, program was carried out as well. This work was developed as part of an effort to create a sustainable, institutional mechanism to finance energy-efficiency improvements for commercial properties. As part of this work, substantial legal and financial analysis was completed, including a proforma and a model ordinance for participating communities. Moreover, a well-developed program operations manual was completed, after consultation with representatives from more than one dozen local cities and counties, and interested economic development agencies and other organizations. See Attachment H.

A strong basis for creating the PACE program was developed. However, a variety of factors created uncertainty about the viability of such a program in the current market context. Significantly, a statewide PACE program that was not operational at the onset of EWKC created competition for the proposed

MARC program. Moreover, uncertainty about market demand for energy improvements created risk and potential liabilities associated with potential MARC commitments to oversee such a program.

## Accomplishments

The overall objective of the EnergyWorks KC grant, and of MARC's portion of the grant, was to transform the supply and demand sides of the energy improvement market and spread the ideas, processes and practices developed and carried out in the rehabilitation work in Kansas City neighborhoods. More specifically, MARC worked towards four different objectives to accomplish this goal:

1. **Policy development and replication:** MARC worked in partnership with the Metropolitan Energy Retrofit Coalition and the EECBG Regional Coalition to develop new policies, approaches and mechanisms to facilitate energy improvements and expand the energy improvement market in the Kansas City metro area. MARC facilitated a series of regional policy discussions culminating in the adoption of the 2012 IECC building codes by the largest city and county jurisdictions in the metro area. Additionally, MARC managed the replication fund to seed initiatives and build capacity in other parts of the metro area, including Kansas City, Kan.
2. **Job training and development:** MARC worked with stakeholders to develop and execute a pipeline that trained, certified and placed residents of the targeted neighborhoods and others in need of employment in EnergyWorks KC jobs and energy efficiency careers.
3. **Public education:** MARC worked with the Metropolitan Energy Retrofit Coalition and the EECBG Regional Coalition to develop and execute a public education program to increase the awareness of the benefits of energy retrofits and the resources, especially the newly developed Beyond The Bulb website and Energy Calculator, available for homeowners to complete improvements.
4. **Training and support for neighborhood organizations:** One of MARC's EnergyWorks KC elements was to provide outreach to targeted neighborhoods getting residents and property owners involved in the energy-retrofit program. MARC supported this effort by assisting in transferring lessons learned in the Green Impact Zone to neighborhood leaders and community organizations in other neighborhoods and communities. In addition, MARC's Government Training Institute added a contextually-appropriate training module for neighborhood leaders focused on marketing and outreach.

## Objective 1: Policy Development and Replication Projects

**Task 1:** Work in partnership with the Regional Coalition, the Metropolitan Energy Center, the City, and others, to develop new policies, approaches, and mechanisms to facilitate energy improvements and expand the energy improvement market in the Kansas City metro area.

*Target: Convene the Regional Energy Efficiency Conservation Strategy (REECS) committee on a quarterly basis.*

*Actual: This advisory group was started under the Energy Efficiency and Conservation Block Grant Formula Grant to the City of Kansas City, Mo and expanded under EWKC to include broader representation of the energy-efficiency community. The committee met quarterly and provided input throughout the EnergyWorks KC grant.*



**Task 2:** Advance the formation of a Clean Energy Development Board to be in place by May 2013 to administer a PACE program for one or more jurisdictions in Missouri. Develop support for the adoption of PACE-enabling legislation in 2013 for communities in Kansas. Complete a business plan to support PACE implementation.

*Target: Form a Clean Energy Development Board and complete business plan to support PACE.*

*Actual: A detailed operating manual and financial plan for a PACE program were developed by June 2013. However, a Clean Energy Development Board to operate the PACE program was not put in place by the end of November 2013. The cities of Blue Springs, Lee's Summit, Raytown, Liberty, Smithville, Kearney, North Kansas City and Clay County expressed a strong interest in PACE. Competition from a statewide PACE program, however, limited the ability of a metro-area program to adequately finance program administration costs.*

*Even though PACE programs are still new and have not yet survived the test of time, MARC believes that PACE is a very good tool for financing energy retrofits. MARC staff and interested cities are continuing to explore alternative strategies to refine, launch and administer a PACE program. Alternatives exist to work with regional and national financing entities and third-party administrators to oversee a local program in ways that create long-term institutional capacity with effective, accessible financing for energy efficiency.*

**Task 3:** Convene a meeting of area utility providers to define a preliminary road map for getting energy usage data for the six corridor studies currently underway that are funded by the \$4.25 million *Creating Sustainable Places* planning grant from the U.S. Department of Housing and Urban Development.

*Target: Convene a meeting of area utility providers and define road map.*

*Actual: This was not accomplished. After multiple meetings and follow-up discussions, MARC was unable to obtain actual usage reports from Kansas City Power and Light by service area and major type of user (residential, non-residential and institutional).*

**Task 4:** Manage sub-grants totaling \$700,000 for six high-impact energy-improvement projects selected to demonstrate the many benefits of energy efficiency and energy upgrades.

a) Board of Public Utilities of Kansas City, Kan. b)

Westside Housing Organization

c) Kansas City, Mo., Parks and Recreation

d) Truman Heritage Habitat for Humanity

e) City of Roeland Park, Kan.

f) Kansas Interfaith Power and Light

*Target: Manage six energy-efficiency improvement projects to demonstrate how residential and nonresidential property owners can successfully reduce energy costs and comfort.*

*Actual: A project solicitation was held to accept applications and to raise the visibility of the EWKC program. Six projects were selected. These projects were successfully executed, creating viable local models demonstrating the value of energy efficiency in a wide variety of building types, institutional contexts and jurisdictions.*

*Truman Heritage Habitat for Humanity converted an 80-year old school maintenance building into a ReStore to sell used and surplus building materials. EnergyWorks KC provided \$75,000 to demonstrate a*

number of energy-efficient products and techniques in the building. As a result, energy consumption was reduced by 45 percent. Moreover, the ReStore facility supports do-it-yourselfers, who constitute a clear demographic with an interest in energy-efficiency improvements.

The Westside Housing Organization (WHO) remodeled a historic fire station using a \$100,000 EnergyWorks KC grant to incorporate a number of energy-efficiency applications that can be displayed for public education and be easily replicated elsewhere in the neighborhood. EnergyWorks KC supported improvements for windows, lighting, insulation and energy efficient heating and cooling. NeighborWorks America, of which WHO is a charter member, also contributed funds to get the roof, and tuck pointing done and Bridging the Gap (BTG) contributed Eco kits, made available by a grant from the City to BTG under a separate contract, to reduce water consumption.

Interfaith Power and Light (IPA) used \$45,000 to do energy-efficiency upgrades in nine places of worship for an average energy savings of 19%. The IPA trained volunteers in each congregation on how to make energy-efficiency improvements. Energy efficiency projects were conducted at the following churches:

- ✓ Kansas City Community Church (KCK), 5901 Leavenworth Road, Kansas City, Kansas
- ✓ Center of Grace United Methodist Church, 520 South Harrison Street, Olathe, Kansas 66061
- ✓ Grace Covenant Presbyterian Church, 11100 College Boulevard, Overland Park, Kansas 66210
- ✓ Victory Hills Church of the Nazarene (KCK), 6200 Parallel, Kansas City, Kansas
- ✓ Bonner Springs United Methodist Church, 425 W Morse, Bonner Springs, Kansas 66012
- ✓ St. Andrews Christian Church, 13980 W. 127th Street, Olathe Ks
- ✓ Lutheran Church of the Resurrection (OP), 9100 Mission Road, Prairie Village, Kansas 66208
- ✓ New Hope Church of God and Christ (Olathe), 1400 W. Santa Fe, Olathe, Kansas 66061
- ✓ Countryside Christian Church (Mission), 6101 Nall, Mission, Kansas 66203

Roeland Park, Kan., used \$75,000 to carry out a program, to improve the energy efficiency of historic homes, in which six workshops on energy efficiency were conducted in the community. Community volunteers assisted professionals as they completed significant energy efficiency upgrades in five historic homes in the community and two light retrofits on two historic homes. The energy consumption and costs went down an average of 56 percent in the six homes receiving substantial retrofits based on energy audits conducted by High Performance Homes.

The Kansas City, Mo., Parks and Recreation Department completed a major remodel of the Brush Creek Community Center, to incorporate energy efficiency equipment, lighting and upgrades to the building automation system. Based on the nature of improvements made and attendant calculations about energy efficiency improvements, the Community Center anticipates saving over \$16,000 annually or over 35% of the existing utility costs of \$42,500.00 annually.

The Board of Public Utilities (BPU), a municipally-owned utility in Kansas City, Kan., used \$247,240.83 to restart a very successful residential and small-business revolving loan program that lost its funding in 2011. BPU made loans for 30 energy retrofits and expects to make future loans as existing loans are repaid. There was 25.29% Average overall percent energy savings for all completed projects.

**Task 6:** Initiate and complete a program evaluation of MARC's effort to support the transformation of the energy-improvement market.

*Target:* One program evaluation of replication projects

*Actual:* Shockey Consulting completed a program evaluation in the summer of 2013. The report demonstrated the viability and impact of community demonstration and workforce development projects. See Attachment A.

## Success Stories — Policy and Replication

### Replication Projects

With a \$75,000 demonstration grant from the EnergyWorks KC program awarded by MARC, the city of Roeland Park, Kan., and Historic Green, a national non-profit organization, showed how a community can teach its residents how easy energy improvements are to do and, at the same time, develop excitement around preserving a community's historic homes. The city and Historic Green conducted three training sessions on Saturdays on how to do energy-efficiency improvements. The trained volunteers, guided by the Historic Green staff and local tradesmen, then completed fairly substantial retrofits on five historic homes and two light retrofits on two historic homes. All the homes were on two connecting blocks. Based on pre- and post-audits, the energy consumption and costs went down an average of 56 percent in the six homes receiving substantial retrofits.

The Truman Heritage Habitat for Humanity in Independence, Mo., was converting an abandoned school maintenance building into a ReStore that would generate revenue to build and remodel more homes in the community, and that would also allow contractors to deconstruct homes and buildings to reduce the amount of construction going to the landfill. Using a \$75,000 demonstration grant from the EnergyWorks KC program awarded by MARC, Truman Habitat was able to incorporate a number of energy efficiency practices into the building so that energy consumption was reduced by 45% from what it would have been with more conventional, non-energy efficient construction. Along with the grant money from Energy Works KC, Truman Heritage Habitat also received a donation of siding from a steel siding manufacturer to reside the entire building. The old insulation was replaced with new R-19 insulation and Truman eliminated most of the windows in the building and replaced the rest with energy efficient Low-E windows. They also replaced all the doors and overhead doors, which were uninsulated and did not seal properly, with insulated steel doors. The building was heated with old inefficient shop heaters and there were several window ac units to condition the office areas which were eliminated and replaced with three 95% efficient gas furnace and air conditioners for the Restore area and one electric heat pump for the office area. Two new shop heaters were also placed in the warehouse area.

### Regional Energy Efficiency Retrofit Collaboration

MARC convenes a Regional Energy Efficiency Retrofit committee (REECS) on a quarterly basis. The group was initially formed through the collaboration of ten of the fourteen communities that received formula EECBG grant allocations. Communities found that they could most easily meet grant requirements for consultation with adjacent communities through a MARC-facilitated process.

REECS was comprised of members from the public and private sectors. Aside from providing a key forum for networking and information exchange among area jurisdictions on energy efficiency-related issues, the committee provided leadership on a variety of issues, ranging from community education, code updates and professional development. For instance, after learning that mortgage lenders typically do not recognize the additional value that energy-efficient design and construction can bring to a home, this committee decided to sponsor a training session for local appraisers and builders. The training focused on how to calculate added value from energy improvements on home appraisals. With a nominal amount of EnergyWorks KC funding, the author of the new Green Description form prepared by the Appraisal Institute conducted a day-long training on adding value for energy efficiency design and construction. A total of 33 builders, retrofit professional and appraisers attended this course. Appraisers were able to obtain seven hours of continuing education credits. This training and engagement of builders and appraisers is expected to change appraisal practices to give greater value to a home's energy efficiency improvements.

## Objective 2: Job Training and Development - Projects

**Task 1:** Work with stakeholders to maintain a pipeline that will train, certify and place residents of the targeted neighborhoods and others in need of employment in EWKC jobs and energy-efficiency careers.

**Target:** *Develop Green Jobs Task Force meeting and convene quarterly meetings.*

**Actual:** *Formed Green Jobs Task Force and convened 12 meetings with regional partners and developed report on creating a green jobs pipeline for the Kansas City region. See Green Jobs Pipeline Report Attachment E.*

*In 2011, MARC convened the Green Workforce Initiatives Task Force to review existing programs that would support a green career pipeline, identify additional needs and resources for such a pipeline, and develop a recommended path forward. At the conclusion of its work, the task force developed a set of recommendations for improvements to the system, including how the EnergyWorks KC grant funds could be invested and developed criteria for selection of grant recipients. The task force comprised members of workforce development organizations, area universities and community colleges, economic development agencies, nonprofit groups and private businesses. The Green Workforce Initiatives Task Force:*

- ✓ *Developed strategies and tactics to strengthen the green jobs pipeline in the Kansas City region, including creating a demand for green jobs, providing training and skill development and connecting people to green jobs.*
- ✓ *Prioritized those strategies.*
- ✓ *Established criteria for awarding grant funds.*
- ✓ *Recommended a structure to evaluate funding requests and a process to award the grant funds.*
- ✓ *Continued to convene throughout the program to collaborate and discuss status of program activities and green job demand.*

**Task 2:** Manage sub-grants totaling \$927,490 for six high-impact green workforce training and education projects designed to train and educate for green workforce development.

**Target:** *Train 240 individuals, place 140 individuals, assist 57 businesses and reach \$625,128 worth of leveraged funds.*

**Actual:** *Trained 336 individuals (140% of target), placed 148 individuals (106% of target), assisted 129 businesses (226% of target) and reported \$596,343.17 in leveraged investments.*

### **Full Employment Council**

*The Full Employment Council (FEC) developed a Green KC Careers Training initiative to help place individuals trained in deconstruction, energy efficiency and water conservation.*

*FEC provided on-the-job (OTJ) training, internships and classroom training opportunities for individuals that lasted four to eight weeks. Employer informational sessions were conducted for employers in the construction industry to promote and educate them on the services available to employers who would offer OJT and internships. Job seekers trained with employers in positions such as carpenters, cement masons, construction laborers, landscape architects, sewer maintenance workers, renewable energy managers and maintenance workers. Those participants that expressed interest in KC Green Careers were provided job training, classroom training and placement through the KC Green Careers Program. The applicant pool consisted of those with no work experience, limited work experience, as well as customers that had extensive job experience, but needed additional job or classroom training. All job seekers received career counseling and completed assessments to determine their interest and aptitude for positions in the green industry. Jobseekers also received resume and interview assistance.*

*needed additional job or classroom training. All job seekers received career counseling and*

completed assessments to determine their interest and aptitude for positions in the green industry. Jobseekers also received resume and interview assistance.

Classroom training for the KC Green Careers program included Occupational Safety and Health Administration (OSHA) Training for construction workers, sustainable material handling for construction and warehouse workers and North American Technician Excellence (NATE) certification for HVAC (heating, ventilation and air conditioning) workers.

FEC worked with several employers throughout the region to place individuals in employment and training opportunities. For example, building upon the grant's interest in water-use efficiency, a local employer hired participants to complete a rain garden on the 2<sup>nd</sup> Street Trail at Holmes near the River Market area. The clients built the rain garden during their internship with the Downtown Council of Kansas City.

Full Employment Council Metrics		
	Target	Actual
Trained Individuals	45	128
Individuals Placed	26	37
Leveraged Funds	\$70,560.00	\$69,752.30
Businesses Assisted		21

### **Johnson County Community College**

Johnson County Community College's [Center of Sustainability](#) and hospitality program partnered to develop a Sustainable Hospitality Internship Program that was developed to create a pipeline for green jobs into the Kansas City region's hospitality industry. Johnson County Community College (JCCC) provided area restaurants with the labor and capital resources necessary to get them started on making their operations more sustainable by focusing on energy- and water-efficiency improvements. Restaurants are among the most energy-intensive commercial buildings per square foot in the United States, so JCCC expected plenty of improvement options.

By working on the operational management side of area restaurants, JCCC students received on-the-job training. Grant funds provided restaurants with compensation for employee time dedicated to the student's internship duties, funding for capital investments in energy and water efficiency, and internship training.

JCCC increased awareness among Kansas City restaurants and hospitality management students about ways to implement energy and water efficiency and sustainability in restaurant operations. Restaurant partners who were not building owners were able to make energy-or water-efficiency improvements with equipment and process changes with the purchase and replacement of energy efficient appliances. These included:

- An induction cooktop to replace the use of single burner butane cook stoves, which is estimated to result in a 38 percent reduction in energy use, as well as reduce ambient heat load on the HVAC system and eliminate butane canister waste.
- An electric immersion circulator to cook in an insulated hot water bath instead of a natural gas oven. This is estimated to produce a 79 percent reduction in energy use, as well as a reduced ambient heat load on the HVAC system.
- Repair of an oven with a door that would not shut completely, leading to constant heat loss into the building, excess natural gas use to keep the oven at temperature, and placing extra load on the HVAC system.

Several of the restaurants who were partners in this program are still in the process of pursuing a Green Restaurant Association certification. There are currently no independent restaurants in the Kansas City Metro that have earned this certification. Once the first restaurant and others complete the certification, JCCC hospitality management students will be well-positioned to assist in supporting continued progress in this process upon completion of the sustainable hospitality internship program.

The restaurants that participated were: EBT, The Farmhouse, Room 39 - Mission Farms, The Rieger Hotel Grill and Exchange, Pot Pie, Michael Smith, Extra Virgin, Christopher Elbow Artisanal Chocolates and Glacé Artisanal Ice Cream.

Christopher Elbow Artisanal Chocolates was the only business JCCC partnered that owns its own building. Thus, it was the only business able to make structural energy-efficiency modifications to its building. The business installed an insulated barrier wall between the shipping and receiving area and the rest of the chocolate production space. It will decrease utility bills and carbon footprint. The barrier wall will prevent outside air from infiltrating the cooled production area and also decrease the amount of space that the HVAC equipment must heat and cool.

Johnson County Community College Metrics		
	Target	Actual
Trained Individuals	7	8
Individuals Placed	n/a	n/a
Business Assisted	7	8
Leveraged Funds	\$13,500.00	\$12,405.00

### **Kansas City Kansas Community College**

Kansas City Kansas Community Colleges (KCKCC) piloted a Construction Green-Up training program to prepare individuals for employment in deconstruction related jobs.

KCKCC's Construction Green Up program was a six-week intensive training class designed to prepare unemployed and underemployed Kansas City metro area adults for a variety of careers related to deconstruction and building materials reuse. The trainees were recruited and supported through a network of community partners throughout the training, and connected to KCKCC's network of industry contacts to help place successful trainees in employment. KCKCC recruited trainees in a variety of ways. They partnered with Kansas Workforce Partnership, advertised through flyers and radio and leveraged KCKCC's broad network of workforce development partners. The program started with a tryout process which KCKCC described as indispensable. Because of the intense training schedule required to complete the industry credentials offered, it was important to gauge likely performance in the program before training began. Selecting applicants was a labor intensive process over two days but allowed KCKCC to quickly determine how trainees would perform in an intense team setting and allowed evaluation of trainee's transportation capacity. The process yielded much more information about a trainee's likely success that would not have been possible through application and testing alone. It also provided a forum for trainees to get to know community partners and prospective employers before they even began training and it gave program staff an opportunity to build new partnerships.

*Over the course of the program, Construction Green Up helped develop a national training curriculum and partnered with Metropolitan Community College and Metropolitan Energy Center to adopt the curriculum metro-wide.*

*Finally, the Construction Green Up program worked toward developing the local deconstruction and building materials reuse industry by working with the individual contractors and organizations interested in deconstruction and by hosting two industry social events to raise awareness and foster dialogue about the field.*

*Construction Green Up added six additional environmental industry credentials at no additional cost by developing a partnership with OAI, a national workforce training organization whose environmental remediation program is administered locally through Metropolitan Energy Center.*

*The businesses served included Heartland Habitat for Humanity; Joe Vaught Realty; ReThink Energy; Dickens Demolition; and others. In each case, Green Up trainees, staff and contractors helped evaluate plan or execute a hands-on building materials reuse project, ranging from feasibility evaluation and clean out and preparation to selective deconstruction salvaging.*

*Construction Green Up negotiated an agreement with Metropolitan Community College and Metropolitan Energy Center to adopt a national deconstruction and BMRR (building materials reuse and recycle) training standard endorsed by the Building Materials Reuse Association, a national industry educational organization. Four individuals participated in the BMRA's Train-the-Trainer program, ensuring that the Kansas City region retains capacity to deliver high-quality training based on a national standard as the industry develops, rather than continuing to rely on outside training consultants.*

#### **Kansas City Kansas Community College Metrics**

	Target	Actual
Trained Individuals	22	29
Individuals Placed	22	17
Leveraged Funds	15,000.00	44,704.05
Businesses Assisted	15	37

#### **Metropolitan Community College**

*Metropolitan Community College trained individual contractors and laborers in abatement and deconstruction and offered small business development training to new and small deconstruction related businesses.*

*MCC focused on deconstruction and worked with KCKCC and MEC to create a pipeline of workers from deconstruction training to environmental remediation employment. MCC worked with the Building Materials Reuse Association (BMRA) to develop a curriculum for workers, contractors, trainers, certification and supporting materials. KCKCC delivered the pilot training for workers and local trainers. MEC referred workers to the training and was involved in contractor training discussions. MCC also delivered environmental remediation and OSHA training as well as an on-the-job training link to employment. With the desire to contribute to setting national standards for the emerging deconstruction industry, MCC contacted BMRA (the Building Materials Reuse Association) a non-profit educational and research organization whose mission is to facilitate building deconstruction and the reuse/recycling of recovered building materials for over 150 members. BMRA had a goal of creating a national certificate and training program for deconstruction. Through the EnergyWorks KC grant, MCC developed curriculum, a national certificate, and train-the-trainer materials to provide national standards and local trainers for Kansas City for a basic worker level training as well as a more advanced Project Management training for existing contractors. See Attachment F to view the train-the-trainer curriculum. A sample of the first session for the deconstruction worker training curriculum can be found in*



*Attachment G. The Kansas City area is designated as a BMRA regional affiliate through 2016 and has gained two local trainers.*

*The partnership with MCC/KCKCC/MEC identified the need for a new approach to deconstruction to address abandoned and decaying buildings. The new model will create a market for recycled lumber to add value to deconstruction projects so they may become competitive with demolition price points allowing cities to support deconstruction initiatives while cleaning up the neighborhoods.*

*In partnership with MCC, The UMKC Innovation Center provided construction business management training to 16 individuals, new and small businesses and provided counseling on Kansas City, Missouri's Section 3 and MBE/WBE certification requirements.*

*In partnership with MCC, the Full Employment Council provided placement with employers in an on-the-job training program that compensated employers up to 80 percent of the first \$5,000 of a new workers' salary. Forty-one workers were placed in employment, nine of them in the on-the-job training program. This figure exceeded the original projection of placing 32 workers. Placements included union work, environmental remediation, deconstruction and laborer positions on several key projects:*

- ☐ Kansas City, Mo., Crime Lab project.*
- ☐ Bancroft School project.*
- ☐ Placement in several companies, including but not limited to, Heartland Sheet, Kingston/SeaAlaska, ISI Environmental, Green Vets, New Horizons Environmental, Foutch Brothers and LMG Construction.*

Metropolitan Community College Metrics		
	Target	Actual Ending
Trained Individuals	35	42
Individuals Placed	32	41
Leveraged Funds	\$87,030.00	\$143,602.97
Business Assisted	12	16

### **Metropolitan Energy Center**

*The Metropolitan Energy Center (MEC) offered training and placement opportunities for contractors and individuals with a focus on commercial energy auditors, weatherization installation contractors and weatherization installation workers.*

*MEC trained 51 weatherization technicians in eight distinct Home Performance Training workshops under the EWKC Workforce Development Program. The weatherization training conducted under this grant and the improvements funded in MEC's weatherization lab were designed to:*

- ☐ Develop a model for fee-based, market-driven training.*
- ☐ Develop a cadre of instructors with strong roots in the local industry.*
- ☐ Position MEC to provide training on a regional basis to low-income weatherization assistance program providers and private energy auditors and weatherization firms.*

*In addition to learning building science, heating and cooling appliances, and weatherization techniques, the trainees participated in EPA Lead RRP (renovation, repair and painting ) training and certification. They also took part in the Healthy Homes for Weatherization Technicians course developed by Children's Mercy Hospital, a local training provider for the National Center for Healthy Homes. The Healthy Homes for Weatherization Technicians was provided pro bono to MEC's Home Performance trainees on a periodic basis throughout the grant period.*



*In addition to learning building science, heating and cooling appliances, and weatherization techniques, the trainees also were invited to participate in Environmental Protection Agency (EPA) Lead RRP (Renovation, Repair, and Painting) training and certification. Thirty-one individuals also received Lead RRP certification funded by the EWKC Workforce Development grant.*

*Scholarships were awarded to five individuals covering the cost of certifications or state licensing making these individuals eligible for jobs. These scholarships led directly to job placements or to promotions for underemployed individuals in residential energy auditing, lead abatement, asbestos abatement, hazardous material hauling and environmental inspection.*

*As a result of the EWKC program, a combustion training workstation has been developed to teach students to observe and diagnose a number of combustion safety and energy efficiency issues that are common in Kansas City area homes. A series of modules have been created to teach insulation of joists, window caulking and weather-stripping, attic hatch insulation and other weatherization techniques. MEC also provided partial scholarships for ten individuals to complete the coursework and certification exam for the American Association of Energy Engineers "Certified Energy Auditor" designation. Six of them completed the training. As a component of each workshop, trainees received hands-on experience by weatherizing houses that were being redeveloped by local community development corporations.*

*With a two-month extension, MEC took several more steps in the development of the Reclaimed Lumber Processing Facility during the month of October, focusing activity on the project objectives:*

- *Workforce development: To continue to develop the workforce for Kansas City's emerging deconstruction and reclaimed lumber processing industries.*
- *Business development: To provide visibility and support for designers and craftsmen that utilize reclaimed wood products in the Kansas City area through the initiative, Reclaim KC.*
- *Market development: To stimulate and organize the market for reclaimed lumber in Kansas City.*

*To achieve these project objectives, MEC partnered with a variety of local makers, designers and distributors to provide the Reclaim KC staff with over 40 hours of professionally led, hands-on training. MEC hosted two community events — a hands-on building workshop and an expo featuring makers and designers who use reclaimed materials in a variety of ways.*

*Reclaim KC worked with Ryan Bennett and Claire Willis of Deadleaf Designs, LLC to offer expert training in advanced tools and techniques used to restore and add value to reclaimed wood to ten trainees, including three reclamation specialists, the Reclaim KC Reclamation Team Lead and six individuals recruited from the community.*

*Trainees learned proper and safe operation of tools and equipment and learned basic shop skills. In addition to 10 hours of in-shop instruction, each trainee spent an additional 30 hours of hands-on skill application in the workshop, even helping to lead the Community DIY Furniture Building Event.*

*On October 26, Deadleaf Design staff, five community members and three Reclaim KC staff gathered at 815 Woodswether Road to build small projects from reclaimed antique softwood, donated by John Peterson, sourced from an 1892 warehouse in Leavenworth, Kan. During this event, Reclaim KC staff helped supervise tool stations on which they had been trained. Community members and trainees constructed furniture based on Deadleaf's adaptable designs, and one participant even featured his work in the Reclaimed Expo.*

*In late October 2013, 100 community members, makers and designers attended a Reclaimed Social & Expo. DRAW Architecture + Urban Design, 360 Architecture, Cinder Block Brewery and others joined forces to help Reclaim KC celebrate local artists, furniture makers and designers who feature reclaimed wood materials in their project at the Faultless Event Space, which itself is refurbished in reclaimed materials.*

MEC took two main approaches to marketing and outreach as market development tools for Reclaim KC. The first was to develop a logo and brand attractive to potential customers, related marketing materials and a web page to host multimedia documentation of the training, events and materials, and a Facebook page to leverage social media. The web address is: [www.reclaimkc.org](http://www.reclaimkc.org). The Facebook page is at [reclaimkc.org](https://www.facebook.com/reclaimkc).

The second was to produce a versatile photo/video marketing tool documenting and narrating the program activities. The video is hosted at:

<http://www.youtube.com/watch?v=7ZhA0C3hzeM&feature=youtu.be>

#### Metropolitan Energy Center Metrics

	Target	Actual
Trained Individuals	86	84
Individuals Placed	60	39
Leveraged Funds	\$400,000.00	\$286,810.85
Business Assisted	30	43

#### University of Central Missouri

The University of Central Missouri's (UCM) National Energy Retrofit Institute (NERI) is a national workforce development program and consortium formed to promote an energy-retrofit model for the residential energy-efficiency sector. UCM received funds from EnergyWorks KC to support two of their training programs, the Retrofit Broker program and Residential Energy Client Service Coordinator (RECSC) program.

The Retrofit Broker program was designed to serve underemployed local real estate professionals that had a desire to leverage their professional skills to help the local energy-efficiency sector grow. The Residential Energy Client Service Coordinator (RECSC) program was created to serve underemployed or unemployed citizens from the MARC service region. UCM procured energy efficiency kits used by graduates to encourage property owners to explore the benefits of energy efficiency and related savings. Many of the kits have been deployed and the remaining inventory will be used (until exhausted) as part of UCM's sustainability plan beyond the duration of the contract.

UCM trained 45 local citizens in two primary certificate areas including the Retrofit Broker (30 participants) and Residential Energy Client Service Coordinator (15 participants). Of the 30 participants, 29 of them met or exceeded this criterion.

While UCM was not contracted to place a certain number of these graduates, UCM placed at least 14 of them, with more expected, as a part of UCM's sustainability plan. Much of the momentum will be carried forward through UCM's sustainability efforts.

Depending on how the term "employers" is defined (many of the real estate professionals who completed the Retrofit Broker class are also small business owners) that number may be as high as 30.

**Task 3:** Initiate and complete a program evaluation of the green workforce development projects to ensure that lessons learned are well documented as part of MARC's effort to support the transformation of the energy improvement market and the workforce that will lead it.

*Target:* Produce one program evaluation report.

*Actual:* Shockey Consulting conducted stakeholder interviews and research and produced program evaluation in April 2013. See Attachment B.



	Target	Actual
Trained Individuals	45	45
Individuals Placed		14
Leveraged Funds	\$39,068.00	\$39,068.0
Businesses Assisted		4

## Success Stories — Workforce Development - Projects

### Deconstruction Success

The deconstruction program was the area in which the EnergyWorks KC workforce program steered the furthest from initial plans, and yet the results are among the most productive in terms of market transformation in a particular sector. The key strategy was open collaboration that emerged between organizations who had received MARC-EWKC funds for deconstruction. This collaboration resulted in a redesign of the proposed deconstruction training, leading to a much more productive and creative partnership between Kansas City institutions with better outcomes.

The EnergyWorks KC projects began with a pilot project between the city and the Ivanhoe Neighborhood Council. MARC played an integral part in bringing together partners and bringing resources to the table, including training conducted by The ReUse People, placement assistance by Full Employment Council and the Green Impact Zone.

Realizing the overfunding of deconstruction worker training under the EWKC Workforce Development Program, the three agencies funded for deconstruction programs (MCC, Kansas City, Kansas Community College and MEC) came together to work out a common strategy for advancing deconstruction with BMRA in the metropolitan area. The result was a coordinated strategy including curriculum development (implemented by MCC), deconstruction worker training (implemented by KCKCC in conjunction with MEC's Minority Worker Training Program) and deconstruction contractor training (implemented by MEC in coordination with KCKCC's Worker Training).

The products of this collaboration are:

- ✓ Kansas City piloted a national curriculum for Deconstruction Worker and Contractor Training for the Building Materials ReUse Association (BMRA).
- ✓ In return for investing in this curriculum development, the three participating institutions will be able to utilize the BMRA curriculum without cost in perpetuity.
- ✓ Nine contractors participated in the deconstruction contractor training and have begun to participate in deconstruction bid opportunities.
- ✓ Contractor-built relationships with deconstruction workers trained through KCKCC's program, resulting in a series of job placements.

### Weatherization and Energy Auditor Training Programs Success

The most important training and education offered through the workforce development program was concentrated on weatherization and energy auditor training to ensure the Kansas City region would have a qualified and skilled workforce to meet the demands of the expanding energy-retrofit market. Below are a few examples of how individuals successfully completed programs and were able to secure employment.

- Curtis Rouser was an unemployed construction worker for almost two years. He went through the Home Performance Training in April 2012 at Metropolitan Energy Center and during the training was introduced to Luke Smith of Green Improvement Consulting. After Curtis completed the
  - two-week training and received his certificate from MEC, he was hired by Green Improvement Consulting and continues to work for the company as a weatherization technician. While he is not certified as an auditor, due to his exposure to energy auditing as part of the Home Performance Training, Curtis is also able to assist the building analysts in conducting home energy audits. He hopes to complete the testing and certification process to become a BPI certified Building Analyst at some point in the future. Consulting and continues to work for the company as a weatherization technician. While he is not certified as an auditor, due to his exposure to energy auditing as part of the Home Performance Training, Curtis is also able to assist the building analysts in conducting home energy audits. He hopes to complete the testing and certification process to become a BPI certified Building Analyst at some point in the future.
- Due to the economic downturn of 2008, Dorian Seats and his mother were unable to keep the family remodeling business going. Dorian also attended the April 2012 Home Performance Training and received a Weatherization Technician certificate. A local insulation company, A+ Insulation was donating instructional time and materials for the training and during that time was able to observe Dorian in action. He was hired immediately upon completion of the training and remains employed at A+, where he is now a crew leader.
- At 21, Breana McGee became our youngest energy auditor. Breana graduated from Paseo High School and spent a year in college at the University of Central Missouri in Warrensburg with a dream of becoming an electrical engineer. Lonely and short on funds, she decided to move back
  - to her family's house in the urban core, get a job and take classes at area community colleges. With grant funds, MEC paid for Breana's Home Performance Training, and utilized scholarship
  - funds to assist her in paying for BPI Energy Auditor written and field exams, which she passed
  - with flying colors. Breana has been interning with several energy auditors, helping them to conduct the audits and write the audit reports. She also was just accepted into the National Energy Retrofit Institute (NERI) program at University of Central Missouri, giving her an opportunity to learn the sales and marketing side of the Home Performance industry.

### Business Assistance Success - Projects

Several of the workforce development programs resulted in business startups and offered a variety of assistance to companies expanding their operations through the energy-efficiency and/or deconstruction sectors.

- ❖ Faith Rivera is a single mother who had been working her way towards a certification as an electrician at the Kansas City Kansas Community College. Faith enrolled in the Home Performance Training at MEC, thinking that it could be a good complement to her electrician skills and would give her some options in terms of jobs as she started her own business. An unusually community-minded person, Faith recruited her electrical instructor and class to rewire MEC's Weatherization Lab (3808 Paseo). She helped build a rain swale and plant native flowers on MEC's Paseo campus and volunteered with Historic Green to weatherize homes in Prairie Village last year. Since taking

the weatherization technician training, Faith has launched Rivera Contracting, LLC, conducting weatherization and home remodeling jobs in the metropolitan area.

- ❖ After many years as a stay-at-home mom and a number of unfulfilling office and warehouse jobs, Sandy Breedlove decided to grow her woodworking hobby into a small business. Despite tremendous attention to detail and fine woodworking skills, when she enrolled in the Home Performance Training Program, Sandy was still struggling to get her business (called "Handy Sandy's LLC") off the ground. The Weatherization Technician training helped Sandy to broaden her business focus to include weatherization and home remodeling jobs, in addition to fine woodworking. In addition, through the training program, Sandy built relationships with an informal network of women (including Faith Rivera, described above) that were trying to start careers in weatherization, energy efficiency and other construction-related fields. This network has continued past the training, as women provide each other with job leads and work together on projects. Faith and Sandy in particular have worked together on weatherization and home remodeling projects and both continue to build their own businesses.
- ❖ Patrick Zaiss was an unemployed information technologies technician who had a very small company going. Patrick attended the August 2012 Home Performance training and received a Weatherization Technician Certificate. He passed the BPI written exam for Building Analyst and successfully completed the field exam and certification process. Patrick is currently conducting energy audits for his own company, AssistTech. He has been approved for the Home Performance with Energy Star contractor list and has completed close to one hundred audits.
- ❖ Donna Sanders is a military veteran who served in the Iraq War. When she left the service, she used her veteran's benefits to obtain training in residential and commercial energy auditing, receiving certifications as a RESNET Home Rater, a BPI Building Analyst, an AEE Certified Energy Auditor, among many others. Then she opened 106 Greenway and began pursuing auditing and environmental abatement jobs. Donna has taken full advantage of the course offerings provided by the Metropolitan Energy Center under EnergyWorks KC, hiring new energy auditors that were trained through the program, participating in the PSD Software Training and sending staff through the AEE CEA certification. Donna has also given back in many ways, both to MEC and to the broader community. She provided leadership to launch a chapter of Efficiency First in Kansas City, provided sponsorships for community events and scholarship funds for new energy auditors. She also participated in many community projects, most recently working with GreenWorks KC to mentor urban core teens in a young women's
  - leadership program. Donna also participated in the Deconstruction Contractors' Training, to learn the techniques of deconstruction and figure out a deconstruction business model that makes sense based upon her capabilities and values. Her company, 106 Greenway, has since participated with certified demolition companies in bids for deconstruction projects and Donna has become a key advisor in the development of MEC's Reclaimed Lumber Processing Facility and Reclaim KC initiative.
- ❖ Christopher Elbow Artisanal Chocolates partnered with Johnson County Community College (JCCC) to make structural energy efficiency building modifications. They are constructing an insulated barrier wall between their shipping and receiving area and the rest of the chocolate production space. The production space must be kept at a cool, controlled temperature to prevent their products from melting. The barrier wall will prevent outside air from infiltrating the cooled production area and also decrease the amount of space that the HVAC equipment must condition. This improvement will decrease the amount of energy they use, their utility bills and their carbon footprint.

- ❖ Daniel Felder of REDLEF LLC took the Construction Business Management Training offered by Metropolitan Community College (MCC). As of June 2013 he had purchased an existing company and hired four employees to work in Hardscape (landscaping with stone) and carpentry.

### **On-the-Job Training (OJT) Success**

Through the workforce development initiative the Full Employment Council increased the number of individuals trained in deconstruction, energy efficiency and water conservation jobs by providing them on-the-job training, internship and classroom training opportunities.

- ❖ **John H.** came to the Full Employment Council Career Center in November 2012 seeking job placement assistance; he had been unemployed since 2010. They discussed with John the available programs and services. Based on his work background, it was decided the Green KC Careers program would be a good fit. He interviewed with Diggs Construction, an employer who agreed to participate in the on-the-job training program and provide eight weeks of job training. John successfully completed the OJT in January 2013 and was offered full time employment with Diggs Construction, as the manager of renewable energy and energy efficiency at a pay rate of
  - \$25 per hour, where he still maintains employment. □ **Scott T.**, another program participant, came to the career center after being laid off in 2012. He had previous experience in the construction industry but had been unsuccessful in landing a job. Scott was placed on a six-week OJT with Foutch Brothers LLC as a construction laborer/deconstruction team lead. While on his OJT, transportation and clothing assistance was provided to help him maintain employment. After successful completion of his OJT, Scott was offered full time placement earning \$20 per hour. He continued employment with Foutch Brothers until May of 2013 and later became employed with Hussman where he continues to work as a Carpenter Installer making well over \$25.00 per hour.
- ❖ **Lakeisha L.**, a youth using the career center, had very little work experience and was looking to work in the construction industry. She came to the career center for assistance with job training and placement. Lakeisha interviewed with Mega Industries who provided her with an eight-week OJT as a construction laborer. While on the OJT, supportive services for transportation and work clothes in the amount of \$300 was provided to help her maintain employment. In August 2013
  - Lakeisha successfully completed her OJT and was offered full time employment with Mega Industries as a Construction Laborer earning \$15 per hour, where she continues to be employed.

### Objective 3: Public Education - Project

**Task 1:** Conduct educational campaigns about specific measures to take and incentives available to upgrade homes for energy efficiency through the use of news stories provided to public information officers in municipalities and counties across the region; news stories for small business publications; and brochures, posters and tip sheets providing energy efficiency strategies. The campaign may also include radio spots, public service announcements, a media kit and bill inserts. The campaign's educational focus will change periodically, cycling through lighting, HVAC, air sealing and attic floor insulation and furnace efficiency.

#### **Target:**

1. *Host four series of themed communication and outreach events: 1) Lighting – July-Aug. 2012; 2) HVAC/Furnace Efficiency – Sept.-Oct. 2012; 3) Air and duct, insulation, ventilation – Nov.-Dec. 2012; 4) Water Efficiency – Jan.-Feb 2013.*
  - a. 2012;
2. *Host outreach events: 36 “mobile meetings” in grocery and/or hardware stores, festivals, trade shows, other events.*
3. *Produce the following educational materials:*
  - o [www.beyondthebulb.org](http://www.beyondthebulb.org)
  - o *Four sample energy efficiency news stories for homeowners.*
  - o *Four sample energy efficiency news stories for small business magazines.*
  - o *Four themed brochures for each phase of outreach.*
  - o *Poster with overview of EnergyWorks KC for outreach events.*
  - o *One poster corresponding to each theme – four total.*
  - o *Folding energy-efficiency tips card – legal to credit card size.*
  - o *Four radio spots, one for each round of education.*
  - o *Four video PSAs, one for each round of education.*
  - o *Four media kits, one to announce each round of education.*
  - o *Four bill inserts, one for each round of education.*

#### **Actual:**

- Hosted four series of themed communication and outreach events: 1) Lighting and HVAC/Furnace Efficiency – Sept.-Oct. 2012; 2) Air duct sealing and insulation – Nov.-Dec. 2012; 3) Water Efficiency – Jan.-Feb 2013.
- Host outreach events — Exceeded original target and hosted 47 “mobile meetings” over a seven-month period, reaching 2,093 people at festivals, trade shows, produce markets and hardware stores. See Attachment C for locations and breakdown by area. An “InTouch” survey was made available to mobile meeting participants via iPads, and was used as an incentive to receive giveaways. Photos from outreach events can be viewed at <http://www.flickr.com/photos/marckc/>.
- Produced the following educational materials:
  - The Beyond The Bulb website, [www.beyondthebulb.org](http://www.beyondthebulb.org), was launched Aug. 1, 2012, offering information about energy-efficiency improvements, energy contractors, do-it- yourself information, rebates to individuals, businesses and contractors. News releases were sent out to promote the launch of the Beyond The Bulb website and at least two articles in local publications resulted from this exposure. We’ve had 1,325 unique visitors and 1,972 visits

since we launched the site in September 2012. 66 percent of the BTB visitors are return visitors.

- Four sample news stories about energy improvements of interest to homeowners and small-business owners were written and provided to MARC's Regional Area Public Information Officers (RAPIO) group and other area energy stakeholders for their use in local publications and websites.
- An article on water was published in "Thinking Bigger Business" magazine, a local
  - online and print small business publication in January 2012.
- MARC solicited, edited and submitted an article by Interfaith Power & Light for Kansas
  - City's Nov. EWKC e-news.
- An email was sent to MARC employees on Nov. 14, 2012 to inform those who are KCMO residents about the rebate and financing opportunities available to them through the EWKC program.
- A feature article on energy efficiency was published in the Air Quality Workplace Partnership e-news, sent to businesses who are members of MARC's Air Quality program.
- Four themed 8.5x11 brochures for each phase of outreach.
- One 30x40-inch poster with overview of EnergyWorks KC for outreach events.
- One 30x40-inch poster corresponding to each theme – four total.
- One 8.5x11 brochure with an overview of MARC's EWKC program.
- Bought air time to run two 30-second energy efficiency ads, originally produced for the Regional Energy Efficiency Conservation Strategy, promoting the [www.beyondthebulb.org](http://www.beyondthebulb.org) web address. The ads ran 97 times on KSHB TV between Aug.
  - 5 and 23, 2013, during 41 Action News broadcasts (morning and evening), the Today
  - Show and the Live Well Network.
- Four news releases, one to announce each round of education.
- Worked with the Green Impact Zone to produce a white paper, capturing the Zone's methods for education and outreach, and distributed that information to pass along the lessons learned to educate, engage and involve Zone residents and neighborhood organizations in Green Impact Zone projects and programs.
- The Beyond The Bulb Energy Calculator, based on the Department of Energy's residential calculator API, was added to the Beyond The Bulb website on Nov. 4, 2013 to help residents get personalized energy savings information.
- Bought ad space to promote the launch of the Beyond The Bulb Energy Calculator, including print ads in The Call, Dos Mundos, Kansas City Hispanic News and The Globe; 15-second radio spots / underwriting on KPRS and KCUR; and online ads with KCUR and Time Warner Cable. The ads ran from Nov. 11 to 22.
- **Task 2: Utilize social networking, e-blasts, and mobile marketing. Use MARC's Twitter and Facebook pages plus its contact list to announce each round of regional education, mobile meeting locations and giveaways. - Projects**
  - **Target:** To engage in ongoing social media outreach
  - **Actual:** Posted information about KCMO's EWKC e-news on the Beyond The Bulb website, MARC's
  - Facebook page and in MARC's environmental blog.
  - 17 Facebook posts; 19 Twitter posts



**Task 3:** Poll audiences through the Beyond The Bulb website during each education period to determine changes in habits associated with energy usage, types of energy efficiency improvements made and factors that influenced decisions to make changes.

**Target:** Conduct four different polls during various education periods

**Actual:** Conducted ongoing “In-Touch” survey from the Beyond The Bulb website from Sept. 5, 2012 to May 15, 2013, using iPads to offer the survey at the mobile meetings. We used give-away merchandise as incentives for participation, asked eight questions and collected zip codes of participants. A total of 961 people responded to the survey. For questions and data collected by county, see Attachment C.

## Success Stories—Public Education - Projects

### Beyond The Bulb

A concept developed early in the contract period, “going beyond the bulb” was meant to encourage homeowners to go deeper into energy savings by doing more than simply changing to energy-efficient light bulbs. The Beyond The Bulb website ([www.beyondthebulb.org](http://www.beyondthebulb.org)) was created to make it easy for visitors to find information on how to make their homes energy efficient and save money on their utility bills. The website built upon lessons learned through a 2011 MARC energy survey (See attachment C), which noted that people in the region are:

- ✓ More energy conscious now than five years ago.
- ✓ Already practicing some energy-saving habits at home.
- ✓ Generally unaware of the energy saving programs available in their areas.
- ✓ Interested in learning about energy conservation.
- ✓ Interested in being solicited about energy conservation.
- ✓ Learning about energy practices through print media.

The Beyond The Bulb website launched Aug. 1, 2012, as a vehicle to encourage residential and business energy assessments, energy improvements and energy savings. Beyond The Bulb is divided into sections for homeowners, small-business owners and contractors, and provides easy access to energy contractors and assessments. There is a section on financing and incentives, testimonials from customers, informational videos and more. There have been 1,325 unique visitors and 1,972 visits since the site was launched in September 2012. Sixty-six percent of the BTB visitors are return visitors. On Nov. 4, 2013, the Beyond The Bulb Energy Calculator was added to the website to help residents who enter information about their home and energy use get personalized energy savings information. MARC will continue to host the website in 2014.

### “Mobile Meeting” Public Outreach

The energy survey MARC conducted in 2011 emphasized that people were generally unaware of energy savings programs available in the area and interested in being solicited about energy conservation. With that in mind, MARC and marketing partner Vireo “took it to the streets” in all nine counties of the MARC region to conduct face-to-face conversations with homeowners about saving energy.

Using handouts and posters to generate interest, staff members greeted visitors in various locations – trade shows, festivals, farmers markets and hardware stores – and engaged them in conversation about their energy use. They carried with them iPads and give-away merchandise, offering participants free CFL light bulbs, air sealing kits, programmable thermostats and water efficiency kits in exchange for their participation in an online “InTouch” survey that gathered information about their energy use at home.

Most visitors were happy to comply and take the survey, which often triggered lively conversations about the dos-and-don'ts of energy conservation, and were even happier to go home with products that would save them money. A total of 961 people responded to the survey and provided input on eight simple questions about their energy use, including one about what inspires them to save energy. Most were in agreement about that — it was saving money.

While having face-to-face interactions with the public had been an objective from the beginning of the campaign, the addition of the mobile survey made it easier, allowing staff to offer a fun activity to passers-by as a way to get them interested in energy efficiency.

#### **Objective 4: Training and Support for Neighborhood Organizations - Projects**

**Task 1:** Work with Green Impact Zone staff to evaluate strategies they have utilized in the zone to educate, engage and involve Zone residents and neighborhood organizations in the Green Impact Zone projects and programs.

**Target:** *Produce a white paper*

**Actual:** *A meeting was held in July with the Green Impact Zone staff and outreach team and MEC customer service representatives to identify the lessons learned about neighborhood education and engagement from the Green Impact Zone . The white paper was completed. See Attachment D.*

**Task 2:** Using the Green Impact Zone program evaluation/white paper as the basis, the Green Impact Zone met with six EWKC target neighborhoods to share the strategies and lessons learned in the Zone so that these strategies to educate, engage and involve residents can be replicated in other target neighborhoods.

**Target:** *Produce white paper on outreach strategies and conducted meeting with neighborhoods to share outreach strategies.*

**Actual:** *Convened stakeholders and representatives of other neighborhood organizations to share lessons learned as described in the white paper. EnergyWorks KC customer service representatives were engaged in the process. See Attachment D.*

**Task 3:** Work with MARC's Government Training Institute to enhance the current Community Leadership Program (CLP) 50-hour curriculum to include environmental advocacy as part of the facilitation, relationship building, problem solving and community building certificate modules. In addition to the core CLP curriculum, a stand-alone, 2-hour module will be developed to provide more detailed content on environmental advocacy targeting EWKC neighborhood leaders. Two full 50-hour CLP programs will be hosted in EWKC neighborhoods along with 5 standalone environmental advocacy courses in year two.

**Target:** *Enhance GTI's 50-hour Community Leadership Program (CLP) to include environmental advocacy and host two 50-hour courses in EWKC neighborhoods.*

*Develop a stand-alone 2-hour module to provide more detailed content on environmental advocacy and hold 5 stand-alone courses in year two of EnergyWorks KC.*

**Actual:** MARC's Community Leadership Program (CLP), with the support of EnergyWorks KC, was able to host 21 classroom sessions with 612 participants. The CLP is made up of five 10-hour certificate programs, Personal Strengths and Leadership Styles, Facilitation Skills, Relationship Building, Problem Solving, and Community Building. There were five, full CLP programs completed in 2012-2013, averaging 24 registrants per class. In the two-year time period there were 38 graduates that completed the full 50-hour certificate program. In addition, MARC sponsored an Energy Efficiency and Advocacy Training. There were five workshops offered, with 61 registrants. The programs were very well received by the participants and attendee testimonials are below. Additional information can be found at <http://www.marc.org/Government/GTI/CLP/Overview.aspx>.

#### *Testimonials from the class:*

##### *Personal Strengths*

- ✓ *This class was timely; fair; conversations were enlightening, personable and invaluable.*
- ✓ *It was a good class where everyone participated. Very good illustrations and facts were presented.*
- ✓ *She was well informed, knew her subject matter well and was able to explain or relate all materials discussed. I look forward to being a part of Jari Holland Buck's next class.*
- ✓ *Great instruction. Each night I was kept focused and brought into the activities presented. I*
  - *appreciate what I have been able to receive from the past five weeks. Thank you.*

##### *Facilitation*

- ✓ *The information given is enough to make you want to do more. I can't imagine adding to this program.*
- ✓ *Please continue the leadership classes so other people will get an opportunity to learn these techniques.*
- ✓ *Excellent instructor! She not only covered what was in our book, but she also answer question, made examples and made sure that*
- ✓ *I cannot think of anything else Jari Holland Buck could do to improve upon her presentation!*
  - *Jari was very knowledgeable about every aspect of this leadership class!!! (subject matter). Thanks very much for a wonderful class!*

##### *Relationship Building*

*What a great opportunity for neighborhood leaders.*

- ✓ *Solid concepts I can apply to my organizations (SGA, EngageKC, Home...)*
- ✓ *Excellent preparation & execution of course. Priceless information learned & can't wait to use it!*
- ✓ *I learned the skills that are vital in having and building a successful relationship.*
- ✓ *Ronelle is a very good teacher and has very good examples in showing the difference in people and pointing out our weakness.*

##### *Problem Solving*

- ✓ *I feel that Problem Solving is a much needed class for any person who deals with people. This training fits any type of situation.*
- ✓ *This was an excellent experience. It was well worth the investment of time.*
- ✓ *The program is good for all areas not just the community.*
- ✓ *Great program! Real life examples were good. The "What to do?" and "What not to do?" is for everyone.*
- ✓ *I can't say enough about the importance of this to committee members.*

### *Community Building*

- ✓ *In a class of its own. A challenge much needed to reach excellence.*
- ✓ *I have learned so much about myself and what it means to be a community leader. Thank you!*
- ✓ *This was an awesome experience for me. Airick Leonard West was a powerful and inspirational coach who was committed beyond anyone I have even known. I referred to this as a "boot camp" lovingly. Airick really made leaders of a group of people who were "clueless" in many ways.*
- ✓ *It was an honor for me to have been a part of this group. I will most definitely give back to the community. I actually felt like this program was more valuable than any college class in business or psychology or leadership or civics.*

**Task 4:** Green Impact Zone will host their Zone Institute for Preparation and Prosperity (ZIPP) which includes the Social Economic and Environmental Training (SEE) curriculum composed of 25 hours over five days. Day 3 is devoted to environmental literacy.

**Target:** *Green Impact Zone will host ZIPP program in August of 2012.*

**Actual:** *Under the Green Impact Zone educational umbrella, Green Impact Zone developed their Zone Institute for Preparation and Prosperity (ZIPP) in 2012. Under this initiative, the Zone then established an Essential Employability Skills program and hosted it three times in 2013 with 108 participants.*

*Complementing the ZIPP program, the Essential Employability Skills (EES) week-long training helps unemployed and underemployed people with job preparation skills. Those who successfully complete the program are entered into the zone's jobs pipeline and referred to openings with area employers. While there is no guarantee of employment, participants learn skills necessary for seeking employment and becoming productive employees, including resume writing, interviewing, work ethic and proper attire. Since the Green Impact Zone began offering EES training in 2011, more than 100 residents have graduated from the program.*

*One unique aspect of this EES training session involves a partnership with the Metropolitan Energy Center (MEC) and other agencies to provide environmental remediation and abatement classes for interested students. After completing the five-week MEC course, students will finish with a week of EES training. These students will receive certificates of completion for both the MEC and EES training.*

### **Challenges**

One of the most significant challenges for the Mid-America Regional Council in implementing the EnergyWorks KC program was aligning the proposed regional strategies with the implementation of the grant at the city level. A majority of the first year of grant was spent designing and developing the program model which created significant time constraints for MARC to replicate activities which hadn't yet been implemented.

Additionally, regional market transformation was clearly an aspirational goal. While significant accomplishments were achieved through all aspects of the grant, "market transformation" was impeded by both the loftiness of the vision as well as the inertia resulting from the great recession. Interest in lending was reduced by many area banks. Interest in borrowing was reduced because of many interacting economic factors. And public focus on issues such as energy efficiency was occasionally distracted by other public and private issues and concerns.

## Workforce Challenges

MARC was able to move forward with developing workforce development programs, but faced challenges with placing trained individuals in occupations for which there was limited demand. The original goal was to train individuals for jobs created by the demand that would be driven by energy retrofit work from EnergyWorks KC. Due to delays in the ramp-up of the program, job training programs really had to work to drive demand and identify other areas for employment for those trained in certified workforce programs.

Some other specific challenges were identified by grantees that implemented workforce projects:

1. Striking a balance between the depth of training that is likely to prepare trainees for a broad range of employment opportunities, and a length of time that is accessible to unemployed individuals without pay is challenging. Kansas City Kansas Community College believes a training stipend would very likely improve program retention, allowing trainees to resolve certain barriers to employment, improve trainee accountability and generally improve the transition process into unsupported employment. In the future, training without stipends should be limited to six weeks. However, 10 weeks of training with a stipend and some period of paid transitional employment after training would likely yield significantly better outcomes.
2. Johnson County Community College found the day-to-day operations, especially in the restaurant industry, are the business owner's utmost concern. Attempting to make anything that is not directly related to the business's core mission into a higher priority is extremely difficult. Every restaurant JCCC worked with sincerely wanted to operate in a more efficient and sustainable way, but finding the time to implement the program was challenging. They also clearly understood the potential benefits, both tangible and intangible, that could result from this program. However, the opportunity cost of taking time away from their core mission always seemed to be too high for them to really focus on making the investments this program offered.

The initial problem that JCCC's program encountered was liability and risk management concerns. In order for a higher education institution to facilitate paid internship opportunities for students, the institution needs to protect itself against potential legal issues related to on-the-job worker liability. JCCC discovered that they were not able to simply identify an interested and capable student and then match them with a restaurant that was interested in participating in the program. Restaurants were unwilling to put a very short-term worker (one semester) on payroll simply for the internship program purposes. JCCC was also unable to pay a student directly for the time they worked in the internship, as that would then make them liable for potential injury or litigation concerns. The resulting solution was to identify students who were already employees of interested restaurants and reimburse the restaurants for the time students spent on internship related activities.

3. Kansas City Kansas Community College's Construction Green Up yielded several important lessons about what worked well and what might be improved in the future. KCKCC realized 100 percent placement was simply not a realistic goal. Unemployed and underemployed workers face barriers to employment that are sometimes beyond resolution during a short-term training program and oftentimes broader economic conditions affect placement rates.; however, carefully selecting the applicants and staying well-connected to industry helped.

KCKCC also found recruiting relationships with local training providers is critical, but over-reliance on a single partner can cause challenges with both program attrition and placement. Construction Green Up developed an excellent relationship with local Job Corps centers, which provided nearly a third of the second training cohort. Though the partnership was well conceived, it led to a concentration of relatively young trainees, some of whom were not ready to enter the workforce upon graduation from the training program. Further, the concentration of younger trainees presented some classroom management challenges. Finally, the training completion rate among Job Corps-referred participants was much lower than expected. KCKCC found the tryout process was indispensable. Because of the intense training schedule required to complete the number of industry credentials Construction Green Up offers in such a compressed timeframe, it was important to gauge likely performance in the program before trainees begin. Training cohorts should not be larger than 20. The demand for the training far exceeds the cohort capacity. Consequently, selecting applicants is a labor intensive process. Tryouts should last at least two days and incorporate significant amounts of hands-on group interactions. KCKCC found that this process allowed them to very quickly determine how trainees would perform in an intense team setting, and requiring a two day tryout also allowed them to evaluate trainees' transportation capacity. The tryout process yielded much more information about a trainee's likely success that would have been possible through application and testing only.

### Policy and Replication Challenges

Significant successes were achieved in the realms of policy and replication. Two key challenges related to the launch of a PACE program were learned during the course of the program. First, a statewide program was developed concurrently with MARC activities, creating both political and economic pressures that challenged the launch of the MARC program. Second, in contrast with other city or county governments that oversee PACE programs nationally, MARC was unable to subsidize staff to launch the program. While discussions with local communities will continue beyond the grant, it will be necessary to generate enough interest to cover administrative costs to launch the program.

### Education/ Training Challenges

Regional education and training efforts were generally successful. Some challenges were noted along the way in aligning marketing and promotion of energy efficiency at the regional scale with similar efforts carried out by other organizations in the region. From a logistical perspective, finding and funding staff to work at events that take place in the evenings and on the weekends poses a continual challenge.

### Program Sustainability Plans

### Policy Development (PACE)

There are two initiatives of MARC's policy development work that are anticipated to continue after the EnergyWorks KC grant is over. First, broad regional adoption of energy efficiency building codes is projected to reduce energy use by 20% in new residences compared with conventional building practices.

The Property Assessed Clean Energy (PACE) program being developed by MARC was looking promising until the two largest cities decided not to participate — the Unified Government of Wyandotte County and Kansas City, Kan., and the city of Kansas City, Mo. decided to join the Mid-Missouri Clean Energy Development Board. These decisions impacted the potential scale of a regional program. Consequently, MARC concluded that there is likely insufficient demand to sustain the administrative costs necessary to operate a PACE program. At this time, MARC is exploring another model for administering a PACE program using a third party program administrator.

### **Replication Projects**

The BPU revolving loan program in Kansas City, Kan. will continue into the future. As participating residents pay back their loans, the funds will be used to make new loans to residents on the waiting list.

The new ReStore at Truman Heritage Habitat for Humanity will provide the Independence community with an opportunity to reuse building construction materials and keep them out of the construction landfill. The revenue from the ReStore will allow Habitat for Humanity to repair or build additional homes each year for those with limited means who would like to own a home.

Interfaith Power and Light will use the nine churches that trained congregation members and completed energy retrofits as examples to other churches of how they can reduce energy consumption and costs, thereby making more funds available for the mission of the church.

Westside Housing has completed many housing projects on the west side of Kansas City, Mo. By being able to reduce energy consumption and energy costs, area residents will have the opportunity to increase the affordability and comfort of their homes.

The Brush Creek Community Center provides many valuable services for a predominantly low-income urban area. As the community center is operated by the city of Kansas City, Mo. Parks and Recreation Department, it is asked every year to do more with less. By being able to operate more efficiently by reducing energy costs, the community center can continue to provide the same services to the community that it has in the past.

The city of Roeland Park, Kan., has seen home owners that participated in the Historic Homes program complete additional energy retrofits. The city also received positive feedback about the program in a citizen survey. Due to the success of the program, the city council is presently considering conducting more Historic Home programs in the future.

### **Education and Outreach**

MARC will continue to maintain the Beyond The Bulb website, keeping the financial incentives and news and events pages updated regularly. They will also update the energy-efficiency information as needed.

MARC also plans to keep the Energy Calculator updated as needed, and are hosting it on their in-house servers for easy access.

### **Workforce Development**

Several organizations worked together to create a pipeline from training to deconstruction and environmental remediation employment. As a result, a number of activities and programs will continue



for the foreseeable future. MARC will continue to engage organizations through workforce development meetings and share information about the progress of each of the projects.

#### **University of Central Missouri (UCM)**

UCM and NERI consortium partners will be sustaining their workforce development efforts by providing ongoing consultation with graduates related to property-owner awareness and education, lead generation and general business operations and planning will continue. Because of the synergies between this effort and NERI operations and goals, continued program sustainability efforts are forecasted to continue for the foreseeable future and planning, consultation and support for community events will also be ongoing. UCM will serve graduates and local employers by connecting graduates' skills with employment opportunities and energy efficiency kits will continue to be distributed.

#### **Metropolitan Community College**

The MCC/KCKCC/MEC partnership will continue to provide training with the Kansas City regional affiliate for BMRA, with a strong focus on working towards the creation of a downstream market for reused lumber.

#### **Kansas City Kansas Community College**

To sustain the work of the Construction Green Up program, KCKCC has taken two approaches: First, the Technical Education Center (TEC) has incorporated a building materials reuse course, along with other green construction technology offerings into its Training for Employment (T4E) program. Second, KCKCC has supported the creation of Green Up, Incorporated, a nonprofit partner organization designed to advance economic opportunity for all through green collar workforce development and green entrepreneurship.

#### **Metropolitan Energy Center**

During the grant period, MEC's name recognition and relationships have gradually grown beyond the Kansas City metropolitan area and, as a result, MEC is getting more trainees from outside of the metropolitan area in parts of Missouri, Kansas, Iowa and Nebraska with less developed residential energy efficiency industries. All of this prepares MEC to continue the weatherization training program on a market-driven basis.

MEC clearly spotted an underserved market in multi-family and small commercial structures in the Kansas City, Mo., metropolitan area. While grants and subsidies can assist in the development of this market, particularly in assisting disadvantaged businesses, it ought to be possible to continue a training program focused on this market with well-targeted fee-based continuing education programs for existing auditors.

Now in its pilot phase, MEC's reclaimed lumber processing facility is designed as an ongoing social enterprise. While it will require additional philanthropic support at the outset, the facility is projected to become self-sustaining within three years. The intent of the processing facility is to strengthen the economic viability of deconstruction by building a market for reclaimed lumber. Thus, if MEC is successful in launching the reclaimed lumber processing facility, not only should the facility become sustainable, but the practice of deconstruction should become more economically sustainable as well.



## Attachments

Replication Projects Program Evaluation	Attachment A
Workforce Development Program Evaluation	Attachment B
Education- Vireo Communication Results	Attachment C
Green Impact Zone White Paper	Attachment D
Creating Green Jobs Pipeline Report	Attachment E
BMRA Train-the-Trainer Curriculum	Attachment F
BMRA Deconstruction Worker Curriculum	Attachment G
PACE Program Model	Attachment H



## Mid-America Regional Council EnergyWorks KC

### Demonstration Projects Program Evaluation

#### Final Report

The Mid-America Regional Council (MARC) is supporting six organizations in the Kansas City region to provide demonstration projects in energy efficiency, water conservation and deconstruction through the EnergyWorks KC program (EWKC).

EWKC is made possible through a \$20 million grant received by the City of Kansas City, Mo. to transform the energy retrofit market for residential, commercial, industrial and institutional buildings throughout the metropolitan area. As part of the effort, MARC developed a green jobs pipeline to provide individuals with a career path for green job opportunities, from training to certification to employment. Participants received the necessary training and skills for energy retrofit careers, to work on EWKC projects and other green job opportunities.

#### Executive Summary

Since that time, in coordination with MARC, EWKC identified six organizations across the area to support as they make energy efficient retrofits to reduce energy costs. The six organizations are: the Board of Public Utilities of Kansas City, Kansas, Kansas, Interfaith Power and Light, the Kansas City Parks and Recreation Department, the City of Roeland Park, Truman Heritage Habitat for Humanity, and The Westside Housing Organization. The goal is that these projects will demonstrate how residential and nonresidential property owners can successfully reduce energy costs. The following chart outlines the organizations participating, the retrofit improvements, and their goals for the improvements.

Project	Description	Goal
Kansas City Board of Public Utilities Loan Fund	0% interest loans to residents & small business owners for whole building energy efficiency improvements to be repaid through monthly utility bill.	39 loans to homes and small businesses; repayment of loans to help fund continuation of the project.
Kansas Interfaith Power & Light	Energy retrofit of 15 area churches chosen by application. Retrofit includes energy audit; temperature control measures, lighting upgrades, and carry over would be used to address next highest priority on energy audit	19% savings in energy costs at each church.
Kansas City Parks and Recreation	Energy retrofit of Brush Creek Community Center to include energy audit, lighting upgrades, and upgrade of current Building Automation System.	15% savings in energy costs the Brush Creek Community Center
City of Roeland Park	Energy efficiency & water conservation retrofit for five historic homes occupied by low income residents and families. Workshops to train volunteers to complete the work.	Homeowner satisfaction. Reduction in kWh and gallons of water used in the home. Workshop attendees using skills and knowledge to repair their own homes.
Truman Heritage Habitat for Humanity	Energy retrofit of ReStore building to include an energy audit, lighting upgrades, upgrades to the current HVAC system, insulation repairs and window replacement.	45% improvement in energy audit results following retrofit as compared to pre retrofit energy audit.
Westside Housing Organization	Retrofit of Westside Housing Organization office building to include an energy audit, water heater upgrade, lighting upgrade, and replacement of windows, new roof installment, and addition of a light reflecting membrane.	Reduction of energy consumption by at least 15% as measured against documented past year's utility cost.

To evaluate the demonstration project programs, program observations and stakeholder interviews were conducted to evaluate recruitment efforts, outcomes and participant satisfaction.

Observations: Given three projects were completed before initiation of this study, just three of the six were observed. They were:

1. the City of Roeland Park,
2. Kansas Interfaith Power and Light- Victory Church of the Nazarene, and
3. KCMO Parks & Recreation - *Brush Creek Community Center*





### *Fixture Replacement*

As part of the observations, pictures were taken to document the retrofit process and a stakeholder interview also was conducted with the program director. Detailed observation and stakeholder summaries can be found on pages 8-12 of this report.

### Stakeholder Interviews:

For the three projects which were already completed upon the inception of the study, stakeholder interviews were conducted to gauge satisfaction with the process and the results. Stakeholder interviews were conducted for:

- Truman Heritage Habitat for Humanity,
- The Westside Housing Organization, and
- the Board of Public Utilities of Kansas City, Kansas

Detailed stakeholder interview summaries can be found on pages 13-19 of this report.



Victory Church of the Nazarene, Fixture Replacement



## Recruitment

### Participants

Recruitment efforts of residents interested in energy efficiency retrofits included flyers, newsletters, social media, and face-to-face communication. Programs that did not focus on individual homeowners or organizations were selected as a result of existing participation in energy efficient programs in the Kansas City, Mo area and/or the need for energy retrofits.

*Programs requiring recruitment included: Kansas Interfaith Power and Light, the City of Roeland Park, and the Board of Public Utilities of Kansas City, Kansas.*

*Programs not requiring participant recruitment included: Kansas City Parks and Recreation Department, The Westside Housing Organization, and Truman Heritage Habitat for Humanity.*

## Outcomes

Goals - The six demonstration project programs defined goals/desired outcomes for their individual program needs, funding, population served and energy audit recommendations. The following chart outlines each organizations goal for improvements and their outcomes.

Project	Goal	Outcome
Kansas City Board of Public Utilities Loan Fund	39 loans to homes and small businesses, repayment of loan to help fund continuation of the project.	BPU currently has a waiting list of 300 residents that have expressed an interest in weatherization and retrofitting; 39 of those will participate in the EWKC loan. BPU is currently making additional funding opportunities for the
Kansas Interfaith Power & Light	15% savings in energy cost at each of the 15 churches retrofitted.	The 15 churches were completed between October 2012 and March 2013. Energy savings will be evaluated, but a full assessment cannot
Kansas City Parks and Recreation	15% savings in energy cost at the Brush Creek Community Center	Percentage of savings is currently unavailable as all retrofits have just been completed, but it is expected the goal savings of 15%



City of Roeland Park	<i>Homeowner satisfaction Reduction in kWh and gallons of water used in the home. Workshop attendees using skills and knowledge to repair their own homes.</i>	<i>Current savings are between 31% - 48%.</i>
Truman Heritage Habitat for Humanity	<i>Improvement in energy audit following retrofit as compared to pre retrofit energy audit modeling.</i>	<i>Energy savings are not available at this time because there has not been any previous record of utility expenses.</i>
Westside Housing Organization	<i>Reduction in energy consumption by at least 15% as measured against past year's utility cost.</i>	<i>Current energy savings are confirmed between 22% - 39%.</i>

Although the programs have achieved or believe they will achieve their goals, one indicated it would seek additional funding in the future. Truman Heritage Habitat for Humanity said it intended to seek additional funds from MARC or other entities for future energy retrofits and improvements.

*A majority of program coordinators are satisfied with program results and the current grantee process. Potential changes within the programs are minimal and would strictly be for the organization's internal use. Programs that have been able to evaluate savings are pleased with exceeding their goals. Those that are unable at this time to evaluate cost savings, anticipate their savings will meet or exceed their goals.*

### Program Satisfaction

Overall, program coordinators indicated they are satisfied with the demonstration program and its results. Many agencies indicated the grantee process and programs were excellent and they anticipate continuing energy retrofits. When program agencies were asked to indicate lessons learned, the majority were satisfied. They did, however, have several suggestions for future programs. They are:

- ✓ Incorporation of Home Energy Rating System (HERS)
- ✓ Initial Energy Audit
- ✓ Emphasis on HVAC System Maintenance

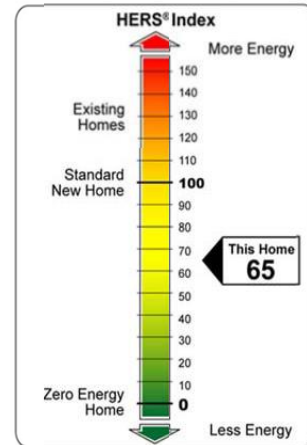


### Incorporation of Home Energy Rating System (HERS)

*“The HERS Index is the nationally recognized system for measuring a home’s energy performance. Based on the results, an energy-rated home will receive a HERS Index Score. The HERS Index Score can be described as a sort of mile-per-gallon (MPG) sticker for houses, giving prospective buyers and homeowners an insight as to how the home ranks in terms of energy efficiency. In addition to a HERS Index Score, a home energy rating also provides the homeowner with a detailed report regarding energy problems in the house.”*

Program coordinators at the City of Roeland Park indicated, inclusion of the HERS Index Score would rate the amount of energy consumed. The HERS Index Score follows a ranking scale from 0 - 150, the higher the number the more energy consumed. Benefits for those homes with lower HERS Index Scores will see energy cost savings and increased property values.

Source: <http://www.resnet.us/energy-rating>



*At this time, it is recommended that the HERS system be incorporated into residential energy assessments.*

### Initial Energy Audit

Although initial energy audits were conducted for the majority of the demonstration projects, the City of Roeland Park indicated not all residential units’ participating in the program received energy audits. Conversely, the Truman Heritage Habitat for Humanity building was the subject of an energy audit and recommendations. However, because it does not have previous utility information or previous audits, evaluating savings will be difficult.

*It is recommend that energy audits be required for every residence or building receiving funding for energy efficiency. Requiring the energy audit will not only provide appropriate recommendations, but provide base standards for future savings comparisons.*



#### Emphasis on HVAC System Maintenance

HVAC, lighting, windows, and insulation were consistently part of the recommended improvements. Of these, the HVAC system rapidly drains budgets allotted for improvements, requiring other areas to be postponed or additional funding to be acquired. Coordinators encourage an emphasis on education of HVAC system maintenance to head off large future costs.

*At this time, it is recommended that HVAC system maintenance education campaigns be developed for residences and commercial buildings throughout the Kansas City metro and additional educational awareness programs to be added to all MARC energy efficiency programs.*





**Appendices:**

**Observation Interview Summary**

**Page 8-12**

- i. The City of Roeland Park**
- ii. Kansas Interfaith Power and Light -Participant Kansas**
- iii. Interfaith Power and Light - Agency Kansas City Parks**
- iv. and Recreation Department**

**Page 8**

**Page 9**

**Page 10**

**Page 12**

**Stakeholder Interview Summary**

**Page 13-19 (pages 110-116)**

- I. Truman Heritage Habitat for Humanity**
- II. The Westside Housing Organization**
- III. The City of Roeland Park**
- IV. The Board of Public Utilities of Kansas City, Kansas**

**Page 13**

**Page 15**

**Page 16**

**Page 18**



Project: Roeland Park Historic Green Workshop

Date: October 13, 2012

Time: 10:00 a.m.

<b>Recruitment</b>	
What was the method(s) of recruitment?	Flyers, website, Facebook
How was the method of recruitment posted delivered or	
<b>Participation</b>	
What was the goal for number of participants? Was it met or	Due to the space restraints not more than eight people have been able to participate
What was the make up of participants? Residents? Contractors?	There were six participants in this workshop, five were homeowners, three from KCMO and one who is a neighbor of the home where the workshop was being held is an employee of JE Dunn.
<b>Learning/Engagement</b>	
What are the participants learning to do?	Weatherize and insulate wooden double pained windows & doors.
Do the participants seem engaged?	Yes, all of the six participants were asking questions, making comments and engaged during the workshop.
Did the instructors seem knowledgeable about the subject matter presented?	Yes, the instructor was an energy auditor and instructor with MEC who had lots of exercise restoring old homes, he offered practical advice for products available, suppliers, and options for smaller budget projects.
<b>Observations</b>	
<p>The workshop was hands on held in an 102 year old home that Historic Green is currently rehabbing. On this weekend Friday Saturday &amp; Sunday they will be holding a volunteer session to complete the work on the home. They have approximately 30-50 volunteers signed up to assist on each day. The size of the home greatly reduced the number of people that could participate in the workshop but enhanced the hands on nature with it being an actual window in an actual home that was drafty and needed to be weatherized. Spoke with Rhondra Francis of Southmoreland neighborhood currently rehabbing her 1896 home she has attended 2 of these workshops and appreciates the live interaction, "You can't ask a video questions, the workshop provides practical hands on instruction with a locals whom I can ask what materials are being used, where can I get those materials locally, information on who I can call if I have more questions."</p>	



*Project: Interfaith - Victory Church of the Nazarene*

*Date: March 9, 2013*

*Time: 12:30 p.m.*

### Recruitment

What did you think of the recruitment process?	The church heard about the program through a newsletter sent via an email. While going through the application process the program staff was very helpful in providing guidance. Process and application wasn't difficult at all.
How would you improve the recruitment process and	I would not change anything
Why did you choose to participate?	The age of the church combined with the fact that we are a small church and could not afford to do these upgrades on our own.
What concerns were there about the project?	Mainly, if we would see a return on our investment, the energy audit and explanation were great.
If you started again, what would you change around	I'm pretty happy with the process and wouldn't change anything.

### Participation

Were you able to get each place of worship to provide 5-10 volunteers as originally	Yes, we actually got more than was required and finished early
How well did the volunteers and	Really well, a lot of our volunteers are electricians by trade so they kinda knew what needed to be done.
How would you rate the training	Our volunteers didn't require much training as many of them are electricians carpenters by trade.
Was the energy audit easy to	Yes. A simplified version would help lay person understand better.
What savings did the energy audit project would occur?	At least 15% savings on energy cost overall
What savings have you seen thus	Still being evaluated
How much disruption of business was there when work	After managing a few scheduling conflicts the work actually worked well with our schedule. We have not seen much disruption at all.

### Learning/Engagement

What would you do different if did it again?	Managing scheduling conflicts better, it took a while for us to make a date to get the work done.
Do you know if the project has motivated any members of the congregation who are	Not yet known, Rabbi Rieber will be coming to talk about the changes that we've made we'll know more after that demonstration
Would you recommend that another place of worship do an	Yes.

### Observations

Specifics of this project included retrofitting lighting fixture to more efficient models in the daily use areas of the church to increase efficiency and brighten the areas, exchanging older thermostats to programmable types to save on consumption in non peak hours. The contractor also check the boiler/ chiller controls to make sure they were working efficiently.



Project: Kansas Interfaith Power and Light

Date: March 9, 2013

Time: 12:30 p.m.

## Recruitment

What was the method(s) of recruitment? Please attach any flier, postcards, etc.	Newsletters and postcards followed by phone call and personal visit to interested churches
How was the method of recruitment posted delivered or sent out?	Email, post mail and phone
What reasons did places of worship give for participating?	Great opportunity to get work done at a savings, need work done but they are small churches with little money to invest.
What reasons did places or worship give for not participating?	Didn't have the money to invest, couldn't raise the money, didn't feel comfortable having KS Interfaith being the contractor and didn't feel comfortable giving the money to KS Interfaith up front.
What mid-term recruitment have you done, if any?	Still on-going
If you started again, what would you change around recruiting?	I would start with the diocese instead of directly going to the churches initially.

## Participation

The goal is to retrofit 15 places of worship. How many are complete? How many have work underway? How many are participating, but still in the planning stage? How many are deciding whether to participate?	<p><i>Churches participating are: Kansas City Community Church, Victory Church, Countryside Christian, St. Andrew Christian, Grace Presbyterian, Bonner Springs Methodist and Center of Grace</i></p> <p>3 have been completed (Kansas City Community Church, Grace Presbyterian, Center of Grace) 2 are underway 3 are currently have energy audits scheduled</p>
Were you able to get each place of worship to provide 5-10 volunteers as originally planned? If not why?	Yes, that has been no problem
How well did the volunteers work with the professionals?	So far so good, haven't heard any complaints
Would you do anything different in working with the volunteers?	I'd like to get them more training in maintenance vs. repair

Would you do anything different in working with the place of worship?	I would place more emphasis on checking HVAC systems up front. Often we can't get to lighting and thermostat changes because we run out of money repairing HVAC/ boiler systems that have been neglected.
---	---

## 

<b>Learning/Engagement</b>	
Did the scopes of work vary more than you envisioned? If so, please elaborate. How would you change the structure or work plan because of this?	Yes on a case by case basis, as stated some of the churches had HVAC or boiler/chiller issues that took up the majority of the funding to fix, as we were concentrating on getting them the 15% savings on energy cost. In a lot of cases that left us little time and money to actually address lighting and temperature control issues.

What process is included for the energy audit? What did you learn from the process and recommendations? Is there anything you would do different with the energy audit process?	<p>Audit report was broken down based on priority and cost. The highest priority being saving the church the 15% on energy cost. Wanted to give each church the options of what they would like to get done but in some cases the issues that needed to be addressed were pressing.</p> <p>*Same audit being emailed</p>
How is the work proceeding on loading the energy consumption data base?	Getting & keeping the data base updated is a continuum, the hardest part is getting the churches to understand what data they need to be giving us AND getting it from them.
What efforts have there been to publicize the the benefits of the demonstration project.	<p>There was an article published in 913 the KC Star magazine, the program website features the work, the Interfaith</p> <p>Power &amp; Light annual report, We are working on getting the Diocese to feature the work in an article</p>
Are you doing any other energy efficient/environmental projects? Do you plan to do any others?	Following completion of this project the KIPL is planning to ask the contractor to become a board member to continue working to increase efficiency in area churches.

#### Observations

Rabbi Rieber had a great report with the contractor and church members. Is planning to speak at the church following the project to demonstrate the improvements and encourage other to follow suit at home.



*Project: Kansas City Parks and Recreation*

*Date: May 17, 2013*

*Time: 11:00 a.m.*

### Recruitment

Why was Brush Creek Community Center selected for the energy retrofit?	Brush Creek Community Center wasn't energy efficient and had many opportunities for improvements.
How was it selected?	The current grant work within the Green Impact Zone and the community centers location in the Green Impact Zone made for a great opportunity.

### Participation

Who is conducting the energy audit?	Davison & Associates - Paul Biersmith P.E.
Who is managing the building upgrades?	Bob Lawler, architect for Kansas City, Missouri

### Learning/Engagement

How did you become interested in this project what are you hoping to achieve?	Interest came from being asked to assist on the project and selecting a community center in KCMO that was most qualified for energy improvements.
How old is the building? What were the issues with the automation system?	The building was build in 1996, The automation system was out of date and required updating to work efficiently with the pools and community centers needs.
What does the audit recommend? What are the projected energy savings?	Recommendations included energy improvements for: lighting fixtures in the gym, parking lot and fluorescent light fixtures throughout the building, automation system, and HVAC.
What savings have you seen thus far?	Savings are not available at this time. Completion of all improvements will be mid-summer of 2013.
What were the lessons learned?	None at this time.
What would you do different if did it	At the time there is nothing that would be done differently.
Do you anticipate doing energy retrofits on other city buildings?	Parks and Recreation for KCMO are always looking for funding opportunities for other areas and Brush Creek Community Center. All projects will be ongoing and take time.

### Observations



*Project: Truman Heritage Habitat for Humanity*

*Date: March 19, 2013*

*Time: 3:00 p.m.*

## Recruitment

Why was the ReStore building selected for the energy retrofit?	Building was already purchased by Truman Heritage Habitat for Humanity. Roger Kroh contacted Habitat about possibility of using grant money to assist in rehabilitation of building. The building was an old warehouse. The timing of our project and the EWKC grant just happened to work out.
How was it selected?	See above

## Participation

Who is conducting the energy audit?	RA Richmond Electrical started, but went out of business. Audit was completed by Hathmore Technologies.
Who is managing the building upgrades?	Michael at Hathmore Technologies and Truman Heritage is overseeing many of the upgrades also.

## Learning/Engagement

How did you become interested in this project what were you hoping to achieve?	The interest was already there as work was starting on the building. Truman Heritage had previously worked with MARC on a solid waste grant and the connection allowed for information about the EWKC grant to be passed on.
How old is the building? What were the issues with the lighting, HVAC system and windows?	Approximately 35 years old. The HVAC system was not running efficiently, windows and doors were old leaky. There were issues with the lack of insulation and siding for the entire building.
What did the audit recommend? What were the projected energy savings?	The audit recommendations were to replace the windows, doors, siding and insulation. Removal of 10 windows completely, but not replaced. Replaced 4 windows, overhead doors and insulation. Lighting replacements were done with additional funds, not from the grant.
What savings have you seen thus far?	Savings are not currently available as the building previous use and records are not comparable to current use.
What were the lessons learned?	Asking for more money in the future. There isn't anything in particular Truman Heritage would do differently in coordination with MARC. Clerical items such as documenting reports and time efficiencies on their end, but that would be for their personal purposes for preparedness. (MARC would request reports with a short turn around, Truman Heritage feels if they had reports ready sooner they would of had less last minute development of reports.)
What would you do different if did it again?	There isn't anything in particular Truman Heritage would do differently. The overall experience was positive and they are happy with the process and results.



Do you anticipate doing energy retrofits on other Habitat for Humanity buildings?	There is a school building near existing building. Currently looking to rehabilitate the school into a community center and Habitat for Humanity office building.
---	---

--

<b>Observations</b>
---------------------

--



Project: Westside Housing Organization

Date: March 11, 2013

Time: 9:30 a.m.

## Recruitment

Why was Westside Housing Organization selected for the energy retrofit?	The Westside Housing office building is very old and has not been update. MEC KC has been forced with two options for energy consumption issues. Energy companies can either reduce usage now or build a new plant to keep up with the high volumes of energy consumption. Missouri also is a state with large amounts of rebates for energy
How was it selected?	MEC KC approached Westside Housing about retrofitting the office building due to its age, also Westside Housing has been doing significant work in retrofitting their residential buildings.

## Participation

Who is conducting the energy audit?	Dennis Wyke - he was very through when conducting the audit and helpful in explaining the recommendations.
-------------------------------------	--

## Learning/Engagement

How did you become interested in this project what are you hoping to achieve?	Westside Housing has been interested in retrofitting a number of its residential buildings for some time now. They realize it's a service they need to offer to their residents and many funding programs have allowed for upgrades and improvements that show their clients they care and coming through on their word of being able to help them.
How old is the building? What were the issues with the building?	The building is 123 years old, it was built in 1890. Nothing had been updated on the building, the windows were very leaky, cracked discolored etc. The entire building was in need of repairs especially energy related.
What does the audit recommend? What are the projected energy savings?	The energy audit recommended improvements to the windows, lighting, hot water heater and the roof and tuck pointing. The roof and tuck pointing are the only improvements EWKC dollars did not go towards. Projected savings were 28%.
What savings have you seen thus far?	Savings are still being evaluated as the windows were a major retrofit and they were just completed this month. So far energy savings have been confirmed between 22%-
What would you do different if did it again?	Nothing at this point. We are very happy with the process and the amount of savings we are seeing from the improvements.
Do you anticipate doing energy retrofits on other buildings?	Yes. Westside Housing is currently in collaboration with many different partnerships i.e. MEC KC, Ripple Glass and Bridging the Gap. Many of the improvements will focus around current residential buildings, but improving their overall greenability inside and out.

## Observations

--



*Project: City of Roeland Park*

*Date: March 22, 2013*

*Time: 8:00 a.m.*

<b>Recruitment</b>	
How were the homes selected?	Flyers and announcements were distributed to all homes. Jennifer Gunby also went to each door speaking with residents about the program and benefits. Many residents weren't interested and/or felt it wasn't possible for the improvements to be "free." 10 homes were interested in the program, 2 dropped out. Of the remaining 8 homes 5 were eligible for the retrofits.
<b>Participation</b>	
Who conducted the workshops	The workshops were hosted by Historic Green, City of Roeland Park and BNIM. The energy audits and workshops were conducted by High Performance
Who is managing the building upgrades?	High Performance Homes and the project team coordinated management.
<b>Learning/Engagement</b>	
How did the participants become involved in this project?	The City of Roeland Park sought interested residents to participate in the program.
How old were most of the homes that were retrofitted? What were the major issues?	Most of the homes were around 1950
Whereas there an energy audit done, if not how were recommendations made?	The energy audit was done afterwards to all the homes and to most homes required the following to be replaced: furnace, air conditioner and windows. The largest savings
What savings have you seen thus far?	31% - 48% Savings were seen in utility bills with a decrease from \$500-600 to \$100
What were the lessons learned?	Build the energy audit into the initial steps of the process to have a comparative analysis after completion. Only one home of the five had an initial energy audit completed.
What would you do different if did it again?	Incorporation of the Home Energy Rating System (HERS). This not only audits the home for existing improvements, but also sets a market value of improvements for prospective buyers and homeowners.
Do you anticipate doing any more energy efficient retrofits in the Roeland Park area?	Yes. We would like to apply for more funding to continue to help other residents out, but also would like into furthering work to community spaces also.

### Observations

Retrofitting/Improvements for workshops entailed weatherization and insulation. This was the focus for the workshops as it was easier to demonstrate to volunteers for replication at home and to friends and family. HVAC and water improvements were also made to homes<sup>1</sup> but work was completed through contractors. Additional assistance from Grunfos pumps with hot water recirculation for instant hot water accessibility. U.S. Green Council also helped with additional logistics for each project. Homeowners were very active in workshops and many other residents have a higher interest after the initial project homes were completed.



Project: Kansas City Board of Public Utilities Loan Fund

Date: March 13, 2013

Time: 10:30 a.m.

### Recruitment

What was the method(s) of recruitment? Please attach any flier, postcards, etc	Recruitment was already done before the EWKC grant was available. BPU has been working on green housing efficiencies programs previously and sought funding to continue green retrofits.
How was the method of recruitment posted delivered or sent out?	n/a
What reasons did people give for participating?	Approximately 300 residences were already signed up through BPU to participate in weatherization retrofits from a group of 800 interested residents. Couldn't afford to invest in weatherization or retrofitting to reduce energy usage.
What reasons did people give for not participating?	Some residents were interested in making the investment, some didn't want contractors in their home.
If you started again, what would you change around recruiting?	There isn't anything we would change.

### Participation

The goal was approximately 39 participants. Was it met or exceeded?	This has been exceeded in respect to residences interested in weatherization and retrofitting, but BPU has limited EWKC funds to 39 individuals of the 300. BPU is currently working down the list contacting individuals to see if they are still
What was the make up of participants? Residents? Small	All residential. The interest was very low on the commercial side and many decided not to participate.

### Criteria/Implementation

What type of energy efficient projects and other projects are being funded with the loans?	Weatherization: Caulking and air filling. If there was enough money left over after weatherization completed some individuals received HVAC improvements. Very few residences will be able to spend money on windows, but a few whos homes were well insulated. which allowed for window
What's the average loan amount for commercial? residential?	Residential homes are allotted \$7,000 - \$10,000 some residences were already quoted and planned on a certain amount due to their energy audit which allowed for the upward to
What percentage of the loans are being paid back from the projects completed 2 years ago	Funding from MARC has just been received, so BPU borrowers have not started paying back at this point.

What were the lessons learned?	Communication to the customers is key and most important. At first the focus was lower utility bills, but with rate increases customers won't see a decrease. We are not aware to explain exactly what the customer will be receiving from improvements. BPU now focuses on decrease in "usage" rather than dollars spent.
What would you do different if did it again?	The approach BPU has used is great along with the amount of partnerships that are being made. As a small utility we don't advise to others doing it on their own, make partnerships to carry the load and assistance with more staff.
How is the work proceeding on loading the energy consumption data base?	The usage isn't currently being tracked as well as it should be, but that is something BPU is considering changing. BPU has pulled a few individual records here and there to monitor usage rate comparisons and all records show significant savings.
What efforts have there been to publicize the benefits of the demonstration project?	BPU is currently not publicizing any green weatherization/retrofit projects as their previous recruitment was very successful. When they did publicize they had newsletters, informational dvds - a very grassroots approach.
Are you doing any other energy efficient/environmental projects? Do you plan to do any others?	Yes. Currently BPU is working on developing a weatherization program/service for low income/no income residents. Since applying for a loan requires a specific income amount, many people are missed that could benefit from retrofitting their homes. This individuals would be able to apply for improvements and

#### Observations

BPU has made many partnerships that are allowing the EWKC funding and other funding they have received make well perceived improvements for residents. Currently BPU is partnering with MEC to help get residents through the entire retrofitting process after they have been approved for the loan. MEC assists in beginning to end phases of setting up the energy audit, understanding the recommendations, contacting and contracting construction vendors, etc. BPU is very happy with the effectiveness of their partnership with MEC and plans to continue making similar ones with future projects.



## Mid-America Regional Council EnergyWorks KC

### Workforce Development Program Evaluation

#### Final Report

The Mid-America Regional Council (MARC) is supporting six organizations in the Kansas City region to provide workforce development training programs in energy efficiency, water conservation and deconstruction through the EnergyWorks KC program (EWKC).

EnergyWorks KC is made possible through a \$20 million grant received by the City of Kansas City to transform the energy retrofit market for residential, commercial, industrial and institutional buildings throughout the metropolitan area. As part of the effort, MARC developed a green jobs pipeline to provide individuals with a career path for green job opportunities, from training to certification to employment. Participants received the necessary training and skills for energy retrofit careers, to work on EnergyWorks KC projects and other green job opportunities.

#### Executive Summary

In 2011, the Green Workforce Initiatives Task Force:

1. Developed strategies and tactics to strengthen the green jobs pipeline in the Kansas City region, including creating a demand for green jobs, providing training and skill development, and connecting people to green jobs.
2. Prioritized those strategies;
3. Established criteria for awarding grant funds; and
4. Recommended a structure to evaluate funding request and a process to award the grant funds

Since that time, EWKC identified a target area of seven neighborhood areas across the City of Kansas City, Mo to emphasize the use of green jobs resources and opportunities. The target area includes: Central Industrial District, Eastwood Hills, Green Impact Zone, Ruskin, Washington Wheatley, Westside and Winnwood-Sunnybrook. In coordination with MARC, the EWKC then identified six organizations within the target area to provide workforce development training programs in support of energy efficiency, water conservation and deconstruction. The goal is that these workforce development programs will; put residents of the Kansas City region who are underemployed and unemployed to work in the local community and neighborhoods. The following chart outlines the organizations participating, the training they are providing, and their goals for that training.





Program	Population Served	Description	Goal/Desired Outcome
Metropolitan Energy Center	1. Unemployed or underemployed individuals seeking work in energy- related fields 2. Incumbent workers seeking additional credentials to advance in their careers 3. Independent contractors or other businesses seeking additional credentials to expand	Metropolitan Energy Center will train or augment training for workers in: <b>Energy Conservation:</b> Commercial Energy Auditors, Weatherization Installation Contractors and Weatherization Installation Workers <b>Deconstruction and Environmental Remediation:</b> Deconstruction Workers, Recycling and Reclamation Workers, Hazardous Materials Removal workers, Asbestos Abatement Workers, Lead Abatement Workers, Environmental Compliance Inspectors	86 individuals will receive training in energy-related fields and of those seeking work, 70% will be placed in jobs related to their training. 30 businesses will be assisted through the initiative.
Kansas City Kansas Community College	unskilled and low-income individuals	Construction Green-Up will equip individuals with the knowledge and skills necessary to achieve a career in a variety of construction jobs. The project's focus is on deconstruction training which is defined as the selective dismantlement or removal of materials from buildings	22 individuals will receive training in deconstruction-related fields and 15 businesses will be assisted through the initiative.
University of Central Missouri - Retrofit Brokers	underemployed real estate professionals	The Retrofit Broker training will focus on underemployed real estate professionals that will provide direct property owner awareness. One-on-one energy and water efficiency and conservation workshops will also be conducted by graduates. Group workshops will be conducted by graduates as well as NERI staff and partners.	University of Central Missouri will train approximately 30 Retrofit Brokers. Retrofit Brokers will be equipped with the materials and supplies they need to conduct 400 property owner individual



Program	Population Served	Description	Goal/Desired Outcome
University of Central Missouri - Residential Energy Client Service	unemployed	RECSC training will target unemployed individuals who can provide customer service for property owners wanting to explore energy efficiency.	University of Central Missouri will train approximately 15 Residential Energy Client Service Coordinators
Metropolitan Community College	individual contractors/laborers	On-the-Job Training program to place up to 32 residents trained in abatement and deconstruction into jobs with contractors for the City of Kansas City, Missouri	Metropolitan Community College will deliver training to 35 participants and UMKC Innovation Center will deliver the FastTrac® NewVenture and Construction Business Management to a total of 12 new

To evaluate the Workforce Development Programs, group stakeholder interviews and an online survey were conducted. The intent of these activities was to examine:

- Recruitment & Outcomes
  - o Methods of recruitment
  - o Number of participants recruited
  - o Number of participants completing training
  - o Number of participants employed as a result of participation in the training program
- Participant Satisfaction
  - o Participants confidence on the job as a result of skills learned during training
  - o Participants satisfaction with the training program
  - o Fulfillment of promised training

Six group stakeholder interviews were conducted in February and March of 2013 with select current and past participants of the Workforce Development Programs. In early April, a broad section of stakeholders was surveyed using an internet based survey program asking questions similar to those posed in the interviews. A total of 33 individuals participated in the group stakeholder interviews and 29 people responded to the survey. A detailed interview list for each workforce development group can be found on page 8-9 of this report. Stakeholder interview questions and the online survey questions can be found on page 10-12 of the report. And complete feedback can be found in the group stakeholder summaries on pages 13-27 and also in the online survey summary found on page 28-35.



## Recruitment

### Participants

Trainees indicated the most effective form of recruitment was flyers, word of mouth, and the workforce development program coordinator/advisor. The online survey reinforced this finding with the following results as 21 percent of the respondents learned of the program from the workforce development program coordinator and 21 percent discovered it through, flyers.

### Training Agency

Workforce development program coordinators indicated the following methods of recruitment were used: flyers to community organizations, events and direct partnerships; word of mouth, face to face, Job Corps, social media, radio ads, and website.

*Overall the most effective methods of recruitment were flyer distribution to direct partnerships and community organizations, workforce development program coordinator/advisor, face to face interaction and word of mouth. The radio ads produced the largest amount of applicants, but in the end the most qualified for the program were from the previously mentioned forms of recruitment.*

## Outcomes

### Goals

The six Workforce Development Programs defined goals/desired outcomes for their individual program needs, funding, population served and training opportunity. The following are each agency's goals.

1. Metropolitan Energy Center – *Train 86 individuals in energy-related fields.*
2. Kansas City Kansas Community College – *Train 22 individuals in deconstruction-related fields.*
3. University of Central Missouri- Retrofit Brokers – *Train 30 Retrofit Brokers.*
4. University of Central Missouri- Residential Energy Client Service Coordinators – *Train 15*
  - i. *Residential Energy Client Service Coordinators.*
5. Metropolitan Community College- *Train 35 individuals in abatement and deconstruction.*
6. Full Employment Council –*Train 45 individuals in “green” occupational skill or on-the-job training.*

### Results

All program coordinators indicated satisfaction with program results that achieved their desired goals. Program results can be seen in the bullets below. Although, the programs achieved their goals one indicated potential for increased funding in the future. Kansas City Kansas Community College mentioned they would seek additional funds from MARC or other entities to provide participants with stipends or on-the-job training.

Results of the Workforce Development Training programs are as follows:



- Metropolitan Energy Center – 75 remediation workers trained, additional deconstruction training surpasses desired 86 individuals trained.
- Kansas City Kansas Community College (KCKCC) – The initial enrollment was 33. Of that, 29 individuals completed at least one component of the program, and 21 completed all components. According to KCKCC those who dropped out of the program were due to time commitment.
- University of Central Missouri- Retrofit Brokers – 30 individuals trained as Retrofit Brokers.
- University of Central Missouri- Residential Energy Client Service Coordinators – Program put on hold for job/employment prospect growth with employers.
- Metropolitan Community College- Exact number is pending, but training is consistent with goal.
- Full Employment Council –48 trained individuals in “green” occupational skill or on-the-job training.

*Program coordinators have indicated all training programs have met their participation goals. A majority of participants who provided feedback in the stakeholder interviews and online survey indicated either that they were currently employed and used the training to advance their career or that they were unemployed, but have since found employment due to the training program. Twenty-seven individuals responded to the online survey question, “How much time after you finished training did it take for you to find a job?” Seven indicated they are still seeking employment; the remainder advanced in their current employment or found a job up within six months after completing the program. Detailed results for this question can be found on page 29.*

### Participant Satisfaction

Overall, participants said they are satisfied with the training program and its results. Many stakeholders indicated the program and instructors were excellent, and they would recommend the program to others in the future. Those who participated in group stakeholder interviews and the online survey provided many suggestions for future program improvements. While the feedback received from the program agencies, the stakeholder group interviews, and the online survey varied, there were consistent themes. Results show that improvements are needed in the following areas:

- ❑ Business Administration Training
- ❑ Networking
- ❑ Supply and Demand
- ❑ Program length



### Business Administration Training

Participants enrolled in training with an emphasis in entrepreneurship at Metropolitan Energy Center (MEC) and Metropolitan Community College (MCC) said that the training was beneficial and they felt confident in their ability to assess energy efficiency. Once the training was completed, and participants established their own businesses they found they didn't have the skills or knowledge to operate. Many stressed the importance of incorporating a business administration training component.

*At this time, it is recommended that a business administration training component be added to the small business training program. This component should focus on all administrative tasks for maintaining a business (e.g. QuickBooks, scheduling, financing, communication, etc.).*

### Networking

Stakeholder interview participants and survey respondents both indicated that networking was an important component for job growth. However, the interviewees and survey respondents differed in their view of whether there were satisfactory opportunities for that network.

The majority of stakeholders interviewed felt the program lacked networking and relationship building. Stakeholders indicated the program prepared individuals with classroom training and language, but those who were not involved in hands-on training or on-the-job training did not connect with professionals and other individuals who could assist in advancing the participants career path. On the other hand, 86 percent, or 25 respondents, who completed the online survey said the program assisted in networking with those in their field of work.

*It is recommended to add a component training program to ensure participants are receiving*



*necessary networking skills and guidance needed to advance their career paths. Suggestions include, but are not limited to:*

- *Adding networking events,*
- *Providing a list of professionals in each field of study*
- *Additional information for those actively hiring*
- *Establish connections with larger companies who can fund mentoring programs*

#### Supply and Demand

Participants expressed concern that many people were being trained; however there are not ample job opportunities. Stakeholders indicated there has been difficulty finding work, along with some individuals have had to travel significant distances for work.

*At this time, it is recommended the EWKC program and MARC evaluates the market before establishing the need for workforce development programs. Those involved in the industry are key indicators of what the current supply and demand will allow for future workforce development programs. It is suggested to coordinate with market analysts, contractors and laborers.*

#### Program Length

Stakeholders and program managers discussed the importance of the program length and material covered. Although the program training is currently successful it was indicated they felt it could be more beneficial for participants to have the opportunity to include on-the-job training, requiring a longer program. A provider and employer both said in the instance of an on-the job training program, an extended program establishes responsibility and accountability in participants while also learning the training materials and the company.

*It is recommended programs have assistance in seeking additional funding, to allow for program extension or addition of on-the-job training. For those programs previously offering on-the-job training it is suggested the length of the program to be extended to 90 days to establish knowledge in training and company processes.*



**Appendices:**

<b>Group Stakeholder Interview Attendees</b>	<b>Page 9</b>
<b>Group Stakeholder Interview Questions</b>	<b>Page 11</b>
<b>Online Survey Questions</b>	<b>Page 12</b>
<b>Group Stakeholder Summary</b>	<b>Page 14</b>
i. Full Employment Council	Page 14
ii. Johnson County Community College	Page 16
iii. Kansas City Community College	Page 19
iv. Metropolitan Community College	Page 21
v. Metropolitan Energy Center	Page 24
vi. University of Central Missouri	Page 27
<b>Online Survey Summary</b>	<b>Page 29</b>



## Mid-America Regional Council EnergyWorks KC

### Workforce Development Programs – Group Stakeholders

#### Interview attendance

- ❑ **Metropolitan Energy Center**
  - o Barry Dicker, Decent Energy
  - o Curtis Rouser,
  - o Don Reck, Bridging the Gap
  - o Joshua Best, Historic Green
  - o Kathryn Persley, Persley Construction
  - o Patrick Zaiss, Assis Tech
  - o Paul Rieck, Instructor/Mechanical Edge
- ❑ **Metropolitan Community College**
  - o Clevell Roper, New Horizon
  - o Daniel Felder, Redlef, LLC
  - o Gloria Fisher, Westside Housing Organization
  - o Harold P. Manlove, Way Out Homes
  - o Kathryn Persley, Persley Construction
  - o Leo McQueeny, Westside Housing Organization
  - o Saleem Saboor, All Bright Homes
  - o Theodore Williams, Craft Solutions
- ❑ **Full Employment Council**
  - o Anna Rosenberger, Foutch Brothers, LLC
  - o John Hall, Diggs Construction
- ❑ **University of Central Missouri**
  - o Regina Drone, Keller Williams Eastland Partners
  - o Robin Marks, Keller Williams Legacy Partners
- ❑ **Kansas City Kansas Community College (*Current Participants*)**
  - o Andre Erving
  - o Ashton Shelby
  - o Bobby Spencer o Charlie Hudson o Jalessa Carter
  - o KCarl Pointer
  - o Marcus Denman





o Michael Ruffin



- o Robert Burgett
- o Tyler Ortega
- o Tyree Sanders
- o Zachery Hunt

❓ **Johnson County Community College**

- o Rocco Romeo, The Farmhouse
- o Yvette Hirang, Brookridge Golf and Fitness



## Mid-America Regional Council EnergyWorks KC

### Group Stakeholder Interview Questions

#### **Current Participants**

How did you find out about the training program?

What training are you currently receiving?

Would you recommend this training to others?

Is the program working with you to find employment?

Do you feel you will be able to find employment with the skills you are learning?

Did you have an awareness of green jobs before you entered the program?

For the training you have received so far, what suggestions do you have to improve the program?

#### **Past Participants**

How did you find out about the training program?

What training did you receive?

Have you acquired employment using the skills you gained in the training program?

How much time after you finished training did it take to find a job?

Did the program help you find employment?

Would you recommend this training to others?

How much of what you learned in training have you applied on the job?

Did you have an awareness of green jobs before you entered the program?

What suggestions do you have to improve the training program?



## Mid-America Regional Council EnergyWorks KC

### Online Survey Questions

- 1. In which workforce development program did you participate?**
  - a. Metropolitan Energy Center
  - b. Kansas City Kansas Community College
  - c. University of Central Missouri – Retrofit Brokers
  - d. University of Central Missouri – Residential Energy Client Service Coordinators
  - e. Metropolitan Community College
  - f. Full Employment Council
- 2. How did you find out about the program? (Check all that apply)**
  - a. Workforce development program coordinator
  - b. Flyer
  - c. Curriculum advisor
  - d. Employer
  - e. Program website
  - f. Other – please explain
- 3. What training did you receive? (Check all that apply)**
  - a. Energy Conservation
  - b. Deconstruction and Environmental Remediation
  - c. FastTrac NewVenture and Construction Business Management
  - d. Building Performance Institute Certification
  - e. Other, please list
- 4. Have you acquired employment using the skills you gained in the training program?**
  - a. If yes, please explain employment and skills used.
- 5. How much time after you finished training did it take to find a job?**
- 6. Were you already employed and took the training program to enhance education?**
- 7. Would you recommend this training to others?**
  - a. Please explain why or why not.
- 8. Did the program assist in finding employment?**



**Mid-America Regional Council EnergyWorks KC**

- a. If yes, what assistance did you receive?



9. **Did the program assist in networking with those in your field of work?**
  - a. If yes, please explain how it has helped you.
  - b. If no, please explain how the program networking could be improved.
10. **Have you applied what you learned in training to your job?**
  - a. If yes, explain what training you have applied.
11. **Did you have an awareness of green jobs before you entered the program?**
  - a. If yes, please explain
12. **What suggestions do you have to improve the training program?**
13. **What other general comments do you have regarding the training program you participated in?**



## Mid-America Regional Council EnergyWorks KC

### Group Stakeholder Interview - Summary

#### Full Employment Council

**Date:** April 5, 2013

**Program:** Full Employment Council

#### Attendees:

- Anna Rosenberger, Foutch Brothers, LLC. (Representative for past participants)
- John Hall, Diggs Construction

#### 1) How did you find out about the training program?

Flyers through the FEC

#### 2) What training did you receive?

Construction

- Internship
- On-the-job-training

#### 3) Have you acquired employment using the skills you gained in the training program?

- Those participants who have remained in the training program through FEC have found employment either on their own or through Foutch Brothers, LLC.
- The FEC is an added resource that has been great for participants for moving forward and using their skills. The skills and knowledge the participants are gaining from the training program allow them to
  - advance farther in the company over time and teaches accountability and responsibility.

#### 4) Would you recommend this training to others?

- Yes. The program has been very positive.
- Yes. The program has allowed Diggs Construction to offer more opportunities with youth build, vet green jobs, section three employment and internships.



**5) Did you have an awareness of green jobs before you entered the program?**

- One individual had worked for the U.S. Department of Housing and Urban Development with the
  - Kansas City, Missouri Housing Authority; he was previously aware of green jobs and specific opportunities.
- All other participants were not as aware about green jobs and materials.

**6) What suggestions do you have to improve the training program?**

- Would love to see a program that would go longer than seven weeks. Ninety days would be more sufficient, allowing individuals to get into a routine and learn the company.
- There states do programs up to six months, learn industry and the company
- Many employers are not aware, but there are bond and tax credits available for having green job training and other industry training programs. This information needs to be more available so they can make use of credits, information can be found at WOTC – Work Opportunity Tax Credits and
  - o \$2,400 per trainee
  - o \$9,700 per veteran





## Mid-America Regional Council EnergyWorks KC

### Group Stakeholder Interview - Summary

#### Johnson County Community College

**Date:** February 11, 2013

**Program:** Johnson County Community College

#### Attendees:

- ☐ Yvette Hiran, Brookridge Golf and Fitness
- ☐ Rocco Romeo, The Farmhouse

#### 1) How did you find out about the training program?

- Yvette was very active in the culinary industry at Johnson County Community College (JCCC) as the president of the Junior Chefs Club, 2010-2011. She is currently working on her three-year culinary apprenticeship in the food industry.
- Johnson County Community College approached Rocco, due to his previous experience in the restaurant industry and working for a local farmer at the farmers' market.

#### 2) What training did you receive?

- Yvette received training over the course of a four-month internship with a focus on culinary food service and food production practices. She worked hand in hand with the EBT Restaurant to take steps towards Green Restaurant Certification by the Green Restaurant Associations (GRA). The GRA is a non-profit organization that provides certification for restaurants to become more environmentally responsible. Certification is awarded to restaurants that apply and meet seven environmental categories: water efficiency, waste reduction and recycling, sustainable furnishing and building materials,
- sustainable food, energy, disposables, and chemical and pollution reduction.
- Although the certification was not completed at the end of her internship, Yvette has continued to help EBT Restaurant continue steps towards certification on her own time and prepare the necessary next steps for two new "green" interns from JCCC.
- Rocco participated in an internship program for sustainable restaurants at The Farmhouse.

#### 3) Have you acquired employment using the skills you gained in the training program?

- Yvette was not seeking employment at the end of her internship with EBT as she was already



employed with Brookridge Golf and Fitness in Overland Park, KS. She does plan to use the skills and education she has obtained from the internship program and the green certification.

- Rocco acquired employment at a restaurant where he looks forward to implementing sustainable food practices and others he learned during his internship.

**4) Did the program help you find employment?**

- Yvette was already placed in the culinary apprenticeship, but she did indicate Ryan Wing with JCCC was very helpful in placing her with the internship at EBT.
- Rocco became employed with a different restaurant upon finishing his internship with The Farmhouse.

**5) Would you recommend this training to others?**

- Yes. The program was great; Yvette wished it had been longer so that she would be able to finish the green certification at EBT. She is very willing to extend any help needed in the program and to continue it for future students.

**6) How much of what you learned in training have you applied on the job?**

- ☐ Yvette said she was very pleased with the amount she learned during the course of the internship program and applies much of the knowledge at her current place of employment.
- ☐ Rocco is currently in the early stages of new employment and unable to fully use skills learned from the internship program that were implemented at The Farmhouse. Discussions with new employer have already taken place for hopes of implementing a recycling program and possible composting. Skills that were learned and implemented while at The Farmhouse include a recycling program and a food waste program. The food waste program was partnered with a pig farmer, which the restaurant establishment coordinated feeding the pigs their food waste and in turn those pigs were their source of pork. This enabled The Farmhouse to have control over what their meat source was in taking.



**7) Did you have an awareness of green jobs before you entered the program?**

- ☐ There had been an overview in other courses, but was not knowledgeable of the potential for green job awareness in the food industry.
- ☐ The participant had some previous knowledge from working in the food industry with a local farmer in the farmers' market. He was not a farmer himself, but was knowledgeable of farming and harvesting processes. Even though the participant was aware of green jobs to an extent, the internship provided more knowledge and awareness to the amount of food waste that is produced by the food industry; 30 percent of what goes to the landfill is food. The importance of recycling all possible materials was also emphasized during the course of the program.

**8) What suggestions do you have to improve the training program?**

- ☐ During the internship the participant assisted The Farmhouse in acquiring technology and materials to improve energy efficiency and composting, but had budgetary restraints. He suggested a "pre-bill" budget option be included in the program training. This addition would allow future training participants to understand the importance of attaining a proposed budget before implementing any green restaurant solutions. The participant has suggested this to the provider, and it is now part of the program.



## Mid-America Regional Council EnergyWorks KC

### Group Stakeholder Interview - Summary

#### Kansas City Kansas Community College

**Date:** February 14, 2013

**Program:** Kansas City Kansas Community College

#### Attendees:

- ☐ Andre Erving
- ☐ Ashton Shelby
- ☐ Bobby Spencer
- ☐ Charlie Hudson
- ☐ Jalessa Carter
- ☐ KCarl Pointer
- ☐ Marcus Denman
- ☐ Michael Ruffin
- ☐ Robert Burgett
- ☐ Tyler Ortega
- ☐ Tyree Sanders
- ☐ Zachery Hunt

#### 1) How did you find out about the training program?

- ☐ Job Corps
- ☐ Counselors/Advisors
- ☐ Deconstruction class was cancelled so, placed in this class.

#### 2) What training did you receive?

- Forklift Operation certification
- Occupational Safety and Health Administration certification (OSHA30)
- Deconstruction and Salvageable Material Training
- Lead Renovator
- Repair and Painting certification

#### 3) Is the program working with you to find employment?

- Job Corps is helping the youth within the training program, but older participants indicated they might need assistance after the program is completed.



- Others intend to network and make connections to find employment before completion of the program. A few individuals would like more assistance in networking during the course of the program.

**4) Would you recommend this training to others?**

- Yes. Although they were only half way through their training, the participants were very positive about it. Skills and knowledge are put to use in their daily lives and community; they know they will make use of it when the training completes and they find employment.
- Participants felt the training program would allow them to move forward in employment and achieve higher level positions.

**5) Did you have an awareness of green jobs before you entered the program?**

- A few participants had a green/environmental background, but others were unaware of green jobs or training until the program was offered. Many commented they have worked in the environment of health hazards, but were very unaware of the dangers. The training has changed their view and opened a new level of awareness of the industry.

**6) For the training you have received so far, what suggestions do you have to improve the program?**

- Participants expressed concern that the length of the course might be credible with potential employers. Concerns centered on whether the amount of training they received in an eight-week period would be enough to gain employment initially and to later advance in their careers. *"Are individuals really qualified with the length of the program?"*
- A deconstruction program should be offered with hands-on element.
- Hands- on training or on-the-job training should be offered for all programs. This might also allow for a stipend for those not receiving assistance such as Job Corps.
- There needs to be a more stringent screening process to evaluate participants and their level of interest in the program.
- The training program started with a higher enrollment, but people were unable to coordinate with the schedule or lost interest. Participants are concerned that the dropout rate might affect the next possible program and funding. *"Will they really want to fund and provide an opportunity again, when the first numbers went from 20 to 12? Will they continue the program?"*



## Mid-America Regional Council EnergyWorks KC

### Group Stakeholder Interview - Summary

#### Metropolitan Community College

**Date: Program:** February 15, 2013  
Metropolitan Community College – Penn Valley

#### Attendees:

- Clevell Roper, New Horizon
- Daniel Felder, Redlef, LLC
- Gloria Fisher, Westside Housing Organization
- Harold P. Manlove, Way Out Homes
- Kathryn Persley, Persley Construction
- Leo McQueeny, Westside Housing Organization
- Saleem Saboor, All Bright Homes
- Theodore Williams, Craft Solutions

#### 1) How did you find out about the training program?

Many participants indicated flyers, advisors or program managers were the source of information for upcoming training programs.

#### 2) What training did you receive?

- Weatherization and Building Performance Institute (BPI) Training
- Deconstruction
- Lead paint
- Asbestos
- OSHA
- OSHA30 – Two Saturdays (This certification lasts longer than OSHA10)

#### 3) Did the program help you find employment?

- Although participants indicated the training program was very informational and helped to further their education and knowledge, they felt it lacked networking opportunities during and after the program. Many said for those who don't already have employment and a network, it would be very difficult to find employment.



- There is also concern of creating a high supply of trained individuals when there is less of a demand
- in employment. This assumption was not shared by all as some participants feel there is plenty of demand, but individuals just need to have the proper training and connections.

**4) Would you recommend this training to others?**

- Yes. All of the participants agreed the training was worth it and would recommend to others, but they had concerns of what to do after the training (See below in “*how to improve the training program*”).

**5) How much of what you learned in training have you applied on the job?**

- One individual is working with the extended training he has received with the weatherization and BPI training. He previously had a heating and cooling degree from Vatterott; this has helped him increase his potential.
- Another participant was currently employed, but has used the training to further his knowledge in construction. This has proven to be very beneficial to his employer.
- Many agreed that even if they had yet to find employment, they feel the training was useful to their everyday lives in their own homes, along with spreading the information to those in their community.

**6) Did you have an awareness of green jobs before you entered the program?**

- Yes. Many of them already had jobs in which they were doing deconstruction and took the training to better themselves. Additionally, the certifications will enhance their career paths.



**7) What suggestions do you have to improve the training program?**

- Establish networks between larger companies and small businesses/minorities in the industry.
- Environmental technician certification didn't allow for the individual to receive a license as three years of job experience is required before licensing.
- People need assistance in getting the licensing.
- Insurance is difficult for individuals to obtain.
- Training was Monday – Friday, eight hours a day for eight weeks. Participants expressed concern with the sacrifice and commitment individuals are making for furthering their education, but having a lack of employment connection in the end. Participants also felt the training program needed a hands on or entrepreneurial component, which would allow individuals to receive site training while possibly providing for themselves.
- Contract positions would be ideal, that could lead into a permanent position
- Contractor associations need to be used for creating a mechanism for counseling/mentorship programs during and after the training programs.
- Not job specific necessarily, but an understanding of where they can go after training.
- Larger organizations that have money and/or grant money need to take a step further and be incorporated with the training programs as the trainers.
  - o Establish hands on training rather than just teaching language.
- Create a business component into the training also. (e.g. QuickBooks, business administration, etc.)





## Mid-America Regional Council EnergyWorks KC

### Group Stakeholder Interview - Summary

#### Metropolitan Energy Center

**Date:** February 19, 2013  
**Program:** Metropolitan Energy Center

#### Attendees:

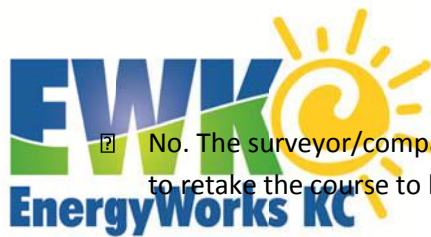
- ☐ Barry Dicker, Decent Energy
- ☐ Curtis Rouser,
- ☐ Don Reck, Bridging the Gap
- ☐ Joshua Best, Historic Green
- ☐ Kathryn Persley, Persley Construction
- ☐ Patrick Zaiss, AssisTech
- ☐ Paul Rieck, Instructor/Mechanical Edge

#### 1) What training did you receive?

- ☐ Software programs
- ☐ Weatherization and Building Performance Institute certification

#### 2) Would you recommend this training to others?

- ☐ Participants felt the training was valuable. The FastTrac New Venture program was excellent in providing a hands-on program that allowed people to understand what to look for when auditing.
- ☐ Those programs that provided on-site training included older homes in the area, which provided insight on different issues from one home to the next. Reviewing older homes also provided insight into variations in carpentry and remodeling.
- ☐ The programs allowed for networking and relationship building for those who already have relationships built. Those who are unemployed before training still lack connections and career relationships at the end of the program. Participants suggest MARC and EWKC work to establish small work sessions to get these individuals into relationship building situations.



2 No. The surveyor/compass program was not helpful. The vernacular was not great and had to retake the course to better understand. A few participants indicated the computer

programs were difficult to navigate and understand, prompts were overlooked and MEC employees had difficulty using the program. Communication and instruction on program materials required going through a chain of people to get an answer. There was no one instructor who could give a direct answer.

**3) Did the program help you find employment?**

Participants already had employment and were seeking additional credentials to advance their careers.

**4) Did you have an awareness of green jobs before you entered the program?**

- One individual had a job and needed to further his education and to enhance his career in weatherization. The program training gave confidence and knowledge to talk to home owners and be able to help them understand what energy efficient recommendations were needed. The program made a difference.
- One woman was transitioning from the corporate world. She met someone via the FastTrac New Venture program who informed her of educational opportunities through MEC. She enjoyed the training as it allowed for a change in type and pace of work. The training brought her interest in green energy, energy conservation, architecture and mechanical systems all together. Training has allowed her to develop a business she enjoys and enables her to continue on this path as long as she desires rather than have to retire.
- Another participant had the interest already as they were a carpenter; this person was contacted by EnergyWorks KC and encouraged to participate in the program. He decided this was something that he could learn from and further educate himself. Currently is working his way up to an analyst and feels more knowledgeable from training and was appreciative of the hands on training.



**5) What suggestions do you have to improve the training program?**

- ☐ A mentoring program needs to be implemented for buying tools, gathering equipment and help in making the right connections.
- ☐ Development of a low-interest loan program that could help people get on their feet and gain momentum after the training program.

**6) General Comments**

- ☐ The training sessions were effective. But individuals participating in the entrepreneurial portion of the program have struggled with administrative operations.
- ☐ There shouldn't be more training for people with the same education as there are plenty of people who are trying to find work and make things work. They are finding work, but some have to travel farther.
  - o There needs to be further training business/professional training.
  - o 80-90% of those who went through the training will be out of work soon. Those who will be able to survive will be those who had a business model and establishment before the training was in place.
  - o A business model/business development needs to be implemented into the training and not just a focus on green energy training.



Participants expressed an extreme concern for how the programs were developed; what processes were used when considering how the grant would be used; and how to reach out to those who it would potentially benefit. The follow are comments of participants regarding this issue.

- Public awareness (billboards, press releases, etc.) was created to promote the program. This activity wasn't visible until much later in the program. This type of PR needed to be at the beginning and the program would have been more successful.
- The industry (contractors, laborers) was not included when the grants were being written and programs developed.
- A demand market analysis should have been involved in the program development.
- The program needed to be designed with input from those who will be putting the applications into action.

☐ All stakeholders need to be considered when the programs are designed. Supply and demand can create a major issue with the program and should be considered for the future

Discussion of how the program was developed led participants in to concerns of what the key strategies and expected outcomes of the training programs were and what they feel was really meant. Many feel the targeted outcome was stated and developed, but failed in execution. Participants again feel the training programs were successful and beneficial, but not for everyone as a whole and individuals who have the means and resources can make it work. The following are responses from participants regarding the overall intent of the EnergyWorks KC program.

- ☐ "If the intent was to create jobs it has failed. If it was to just train individuals, then it succeeded."
- ☐ The program favors established companies. Grassroots companies struggle when they don't receive payment for 80-90 days.
  - o "The City doesn't understand why small businesses are higher priced. It's because those who are smaller are waiting to get paid. We have to compensate for the loss at times."
- ☐ If the point of the grant was to address multiple houses and provide self-sufficiency to renters, then they have failed.
- ☐ Quality assurance was not focused on; there was disconnect and audits were not monitored.
  - o There was a disconnect in communication and guidance between instructors and participants.



## Mid-America Regional Council EnergyWorks KC

### Group Stakeholder Interview - Summary

#### University of Central Missouri

**Date:** March 22, 2013

**Program:** University of Central Missouri

#### Attendees:

- ☐ Robin Marks, Keller Williams Legacy Partners
- ☐ Regina Drone, Keller Williams Eastland Partners

#### 1) How did you find out about the training program?

- ☐ A friend who had participated in the program recommended it.
- ☐ A colleague informed other real estate agents of the course and its benefits.

#### 2) What training did you receive?

- ☐ Residential Energy Retrofitting
- ☐ Green Energy Retrofits – Conservation.

#### 3) Have you acquired employment using the skills you gained in the training program?

The participant was currently employed with Keller Williams and participated in the training program to continue education for career advancement.

#### 4) Would you recommend this training to others?

- ☐ Yes. The program was a great experience and provided a springboard for furthering her career. The instructors and participants were very involved, which led to proactive attitudes outside of the classroom during and after the training program. Many of the participants stay in contact with each other and network on a regular basis.
- ☐ Yes, the program was excellent, and the instructors were very knowledgeable. The program was very interactive, and the instructors allowed us to have discussions about the materials that we were learning about and how it could be better applied to the industry. There were instances where some of the information was revised to better serve future trainees.



**5) How much of what you learned in training have you applied on the job?**

- Skills and knowledge from training have been applied since the training program started. The participant felt they have been able to look at properties from the start with a client and inform them of ways to upgrade and improve their home for resale or after purchasing and still see energy savings, rather than waiting until an energy audit is conducted. Feedback from clients has been very positive, as the participants skills and training are producing savings in the end.
- The skills and knowledge from the training has not fully been applied at this point, but participants believe it will be beneficial for the future.

**6) Did you have an awareness of green jobs before you entered the program?**

No, the only awareness was a previous workshop the participant was involved with for electrical retrofitting through the Electrical Union Hall.

**7) What suggestions do you have to improve the training program?**

- The program overall was great, very informative and proactive; the only suggestion would be to add networking and dialogue with mortgage brokers. The brokers are a very valuable part to the real estate process; throughout the training the participants weren't able to speak to or learn from them. Creating a dialogue between brokers and agents on a level of energy savings would improve the training program.
- Providing continuing education credit for the training would be helpful for those who participate and also create an incentive for those who have not participated.



## Mid-America Regional Council EnergyWorks KC

### Online Survey - Summary

**Date:** April 12, 2013

**Program:** Workforce Development Online Survey

29 respondents. (Please note that comments were transcribed directly from the survey instrument.)

#### 1. In which workforce development program did you participate?

- |  |                          |
|--|--------------------------|
| a. Metropolitan Energy Center  | <b>45%, 13 responses</b> |
| b. Kansas City Kansas Community College  | <b>17%, 5 responses</b>  |
| c. University of Central Missouri – Retrofit Brokers                               | <b>38%, 11 responses</b> |
| d. University of Central Missouri – Residential Energy Client Service Coordinators | <b>0%</b>                |
| e. Metropolitan Community College  | <b>0%</b>                |
| f. Full Employment Council   | <b>3%, 1 response</b>    |

#### 2. How did you find out about the program? (Check all that apply)

- |  |                          |
|--|--------------------------|
| a. Workforce development program coordinator | <b>21%, 6 responses</b>  |
| b. Flyer                                     | <b>21%, 6 responses</b>  |
| c. Curriculum advisor                        | <b>14%, 4 responses</b>  |
| d. Employer                                  | <b>7%, 2 responses</b>   |
| e. Program website                           | <b>3%, 1 response</b>    |
| f. Other – please explain                    | <b>45%, 13 responses</b> |
| I. Continuing education                      |                          |
| II. course KC Realtor                        |                          |
| III. Association Scott Boyce (2)             |                          |
| IV. Referral (4)                             |                          |
| V. Internet Green                            |                          |
| VI. Impact Zone                              |                          |
| VII. Email                                   |                          |
| VIII. MARC                                   |                          |

#### 3. What training did you receive? (Check all that apply)

- |                        |  |
|------------------------|--|
| a. Energy Conservation |  |
| b. Deconstruction      |  |

**52%, 15 responses**  
**38%, 11 responses**

- c. FastTrac NewVenture and Construction Business Management **3%, 1 response**
- d. Building Performance Institute Certification **21%, 6 responses**
- e. Other, please list **28%, 8 responses**
  - i. Retrofit Brokers (4) Surveyor and
  - ii. Treat





- iii. Commercial/Multi-Family audit training (2)
- iv. Healthy Homes Training/HUD Green Training

**4. Have you acquired employment using the skills you gained in the training program?**

a. If yes, please explain employment and skills used.

i. **No. 59%, 17 responses**

ii. **Yes. 41%, 12 responses**

1. I took the warehouse advantage of both certification classes. The first job is part-time work doing demo/clean-up and the second job is full-time work at Bus.
2. Have begun working very part time on a commission based possible retrofit and setting appointments for energy audits with new home-owners. I wouldn't really call it a job though. It's not like I could quit my other jobs and just go full time off the bat. Or that I would ever quit my other right job, for that matter.
3. Completed Energy Audits
4. I am using the information in my handyman service. I am keeping old building material that can be repurposed for others to use.
5. No new employment. I'm already an auditor using the software energy
6. Started a new company, Greenergy Services LLC
7. Program Manager for Homelessness Program at The Gap Housew Bridgin
8. Gained additional skills and knowledge to use in my business
9. Employment: New Horizon LLC Asbestos Abatement Lead Abatement Demolition
10. Working for a small company remodeling
11. More grants and more grant opportunities
12. I was not looking to acquire employment but to enhance my knowledge and skill set so that I could improve service to the community (and real estate clients. My skill set has been increased and I am implementing an initiative within the zone that could benefit neighborhoods as a result of this training.



- 5. How much time after you finished training did it take to find a job?** **44%, 12 responses**
- a. Helped me advance in existing job
  - b. Job opportunity was available as soon as training was completed **11%, 3 responses**
  - c. Within one month after training **7%, 2 responses**
  - d. Two to six months after training **7%, 2 responses**
  - e. More than six months after training **4%, 1 response**
  - f. Still seeking employment **26%, 7 responses**
- 6. Were you already employed and took the training program to enhance education?**
- a. No. **21%, 6 responses**
  - b. Yes. **79%, 23 responses**



**7. Would you recommend this training to others?**

a. Please explain why or why not.

i. **No. 10%, 3 responses**

ii. **Yes. 90%, 26 responses**

1. Most definitely because not only for advance knowledge hands on g the traini certification certificate really turn heads on that resume.
2. interesting, but this field seems to be saturated, or needs additional way open it up
3. This is very beneficial to not only the real estate agent but helps us foster the importance of energy conservation with our clients ers. In addition, I and ot also do contracts for a major company and it allows me the ability to fully understand the need and develop sevice level agreements for our suppliers to meet.
4. Energy awareness and conservation, though slow coming, is r ore becoming and more, a necessity. Those of us, like other innovators, have to wait for the masses to "catch up". Necessity is the mother of invention. The ere. need is t The way to fill the need it there. It's a matter of educating and providing a way to do the things most homeowners are aware they would LIKE TO DO, any way.
5. This is valuable formation to past, present and future homeowners.
- i
6. Self-employer
7. Great opportunity to educate clients and the real ustry ways to estate in c cor serve energy!
8. Scott Boyce has a gift of teaching and speaking.
9. I think the program was great. It has helped me become more helpful in my field. So many people are unaware of reduce energy cost, and how to ways t lower their monthly energy bills.
10. It gave me more knowledge on energy asses ment and what resources are av ilable as well as the benefits.
11. I think that trying to reuse old materials from houses and old buildings instead of taking it to the landfill is a g



12. Get at trainers and facility good idea, should of been done a long time ago.
13. The program is beneficial to anyone d in saving energy.  
interest e
14. I learned a lot about repurposing and I just finished the class a few weeks ago m  
and I am looking to start a co-op with embers of our class.  
other
15. The "training" was a joke. It was a two phase program with a week in one month and a follow up session the following month. It was unorganized and w  
didn't provide any assistance in real field application. s contractor ere  
We a asked to provide OUR experience and ideas as nd the  
from the field W e class  
discussed such. e also provide OUR field equipment. I hope tax dollars  
were p w  
NOT spent with MEC for this.
16. In the on and buildingg design industry this knowledge and a  
constructi guidance  
is needed to make better  
buildings. epts and skills needed to excel
17. Ve y good progr m, broad exposure to  
conc
18. It change my job to a career  
opportunity
19. Learning allows you the opportunity to change behavior



20. Utility cost and environmental conservation rank high in the minds of buyers and sellers; as such this type of training should become part of : Kansas City Association of Realtors and National Association of Realtors continued education (CEU) requirements

**8. Did the program assist in finding employment?**

a. If yes, what assistance did you receive?

i. **No. 68%, 19 responses**

ii. **Yes. 32%, 9 responses**

1. The resume was on point
2. Two companies which are really just partners were offered as potential employers.
3. We were introduced to energy retrofit providers
4. Gay Lee was very helpful and kind. She helped me set up a few interviews with future employer.
5. Enhanced present skills
6. Enhanced my existing job skills, leading to an offer from another employer.
7. Interviews
8. Helped the organization keep people employed.

**9. Did the program assist in networking with those in your field of work?**

a. If yes, please explain how it has helped you.

b. If no, please explain how the program networking could be improved.

i. **No. 21%, 6 responses**

· **Yes. 86%, 25 responses**

1. Forklift demo and warehouse knowledge
- i 2. Contract development of service level agreements
- i 3. Several individuals and businesses in the consortium were introduced to us.
- 4. Common interests
5. Possibly will be. No currently engaging with anyone in the field.
6. Enjoyed the classroom time with other real estate agents from around the city.  
Compared how they will apply what we learned.
7. Met new agents in the KC area.
8. Maintaining contacts with classmates
9. Yes. I have shared information with other realtors by way of a class and other communications such as radio.



union to expand knowledge, education and possible employment opportunities for our local union.

11. Exposure and networking with people in the field and learning from them.
12. Yes. There were other things in the program that helped.
13. Somewhat during the course
14. Contractor meetings – open house events
15. I am looking to start a co-op with members of the class.
16. It is always good to share experiences with others in the same field.

B  
u  
i  
l  
d  
i  
n  
g  
  
a  
  
n  
e  
t  
w  
o  
r  
k  
  
w  
i  
t  
h  
  
t  
h  
e  
  
l  
o  
c  
a  
l  
  
e  
l  
e  
c  
t  
r  
i  
c  
a  
l



17. Introduced me to others in the field as well as resources.
18. Besides the relationship building with peers, the instructors have become a resource in my work.
19. Numerous events and seminars that I have attended
20. I have had opportunities to network before and following events
21. It hasn't helped
22. Job interviews with the company I'm working with today.

**10. Have you applied what you learned in training to your job?**

a. If yes, explain what training you have applied.

i. **No. 28%, 8 responses**

ii. **Yes. 72%, 21 responses**

1. Everything
2. utilize my knowledge to better establish a final finished service that a ve providing for the company
3. It's a slow start, but I have explained the process and had both of my homebuyers decide to start the process of retrofitting with an energy audit.
4. Spoke with effective buyer clients for the incentive of the program
5. Helping homeowners or new buyers be aware of improvements or habits to save energy and in doing so, save money!
6. Everyone I meet I share my new found knowledge!
7. The knowledge has definitely helped me in my real estate career. I have some in appointment's set up.
8. Daily I have disclosed what I have found about efforts as well as the dangers of trapping bad air in your home to my customers and clients.
9. I am able to assess a home as far as energy performance and make recommendations to clients/individuals on how to proceed to make their home more energy efficient.
10. People skills and not throwing everything away.
11. Enhanced understanding Operation of equipment Enhanced understanding during QA sessions
12. Repurposing and salvaging building materials for others to reuse
13. Helped understand the use of Surveyor.
14. Learned auditing and hat is the field of work I am performing.
15. On a daily basis in recruiting homeowners to participate in the program.



16. I have integrated the air sealing and insulation in my work as a house sealin renovator.
17. Principles of building science that enhanced my understanding and capability in the field
18. Yes I applied all the skills I learn to the job I have today with n NEW HERIZONS LLC
19. Basic construction skills
20. Westside received the national award for Green Designation
21. My skill set has been increased and I am implementing an initiative within the zone that could benefit neighborhoods as a result of this training.





**11. Did you have an awareness of green jobs before you entered the program?**

a. If yes, please explain

i. **No. 45%, 13 responses**

ii. **Yes. 55%, 16 responses**

1. Just enhanced the different ways and the networking did wonders
2. I was aware of the industry and some of the programs  
Not in depth as I learned in this class. I was aware of LEEDS, etc but didn't realize the areas in which SME's are developed
3. I attended UMKC Brown Field Management course and Brown Field
4. Entrepreneur course 12 years earlier.
5. In related field as a home inspector
6. I have been in construction industry for nearly thirty years and going through the future green
7. I have always known about green jobs, I enjoy learning about solar power, recycling, repurposing, and keeping the earth green
8. I've been an Energy Auditor since 2010.
9. As commercial contractor, was familiar with LEED and green building techniques.
10. Have been involved in the environmental movement since the early 70's  
very aware of the potential for green jobs.
11. I currently work in the field as a licensed RESNet and auditor.  
BPI a
12. I am an architect so I knew there was a growing need for these jobs.
13. Sought out training to become more able to apply a "green" approach to my work.
14. I was aware and seeking a green job career
15. I have been environmental tasks force for and other  
on the Government  
organizations
16. My work within the Green Impact Zone provided a base of knowledge about green jobs

**12. What suggestions do you have to improve the training program?**

- a. At this moment nothing my experience and fellow classmates was close worked together while taking the class itself. The money helped so much so keep up the good work and finally



ord. Thanks so

word of mouth is the best sales so my mouth will be spreading on  
the good much talk to you later.

- b. The companies that were presented did not effectively present any additional training for us.

There were no run through of how to use the online program, which is complicated. One of the companies has their phone disconnected. The other does not jive with Mac computers, which you then cannot use an IPAD to take client interview to add information and get a bid on the audits. Also - to jump start our careers - there should be a discount on the audits. The be a for the audits seems to be a major hurdle for paying anyone we were people. The com seem too complicated to work with. introduced to

- c. It would have enhanced the program if there were many more mortgage brokers who were

willing to participate by providing energy Mortgages and who would come in and efficient to the class about this type of talk also be beneficial to have continuing mortgage. It would Education in this scope of education.

- d. More in-the-field training, actually on site.



- e. Simplify it. Too many roles in the process presented.
- f. Enjoyed it all... Very educational.
- g. Wish there were more "Green builders" that came to class to speak especially for new construction. with us.
- h. Continuing education, a way to keep what we have learned fresh.
- i. Need more interaction with the key components of the retrofit exchange and ecobroker as well as fellow students.
- j. The training is very helpful and practical. It's well organized and easy & friendly learning environment. I'm very grateful.
- k. Lead the horse to the water, job placement to get more than the 1% work force going in this special field.
- l. More direct info specifically on testing all through the training. The weatherization section should be on the end to add time for testing related question
- m. One on one study as well more computer program training. More as
- n. Given the time limits this was a good mix of class room and hands on training.
- o. Have a company experience with real training and education host the sessions. Have a curriculum to follow, and even have reference material available. Bring ideas to the table as opposed to everything from the class. It was a phenomenal waste of time. harvesti
- p. MEC needs to have one or two people that can help you fully instead of 12 different people having a small part of the process and not knowing what the others are doing.
- q. Need assistance rent, bills food. Should be able to keep tools during training can't do jobs without
- r. Networking grant recipients to use of resources and people among improve resourc

### 13. What other general comments do you have regarding the training program you participated in?

- a. The experience is good to know but still have to put in the time. twice as hard because of at times high expectations. It do not matter the result is outstanding (smiles). en
- b. I think this is a great industry, when I put my foot in the water, seems the consumers are but wary. there has been a lot of confusion and those who have been interested in retrofitting may have already had an audit, without a real resolution. It was more of an audit, and will then we blow insulation and get a rebate. I like the idea of a whole house audit - but am not going into



- g  
someone's house to experiment with how the program works. This should all be included.  
Seems like the companies d were happy to get trained workers and didn't want to do  
involve any  
additional training marketing assistance.
- c. very interesting, well thought nd extremely informative  
out d. The program was very presented in an easy to understand way. The instructors  
decisive an  
were very knowledgeable on pic of instruction. If they re asked a question they didn't  
the t w  
know the answer to, they would always find out. The materials used were concise and  
easy to follow. The instructors engaged us with our peers through thought provoking  
interaction over  
the material. We were encouraged to begin ply what we learned right away.  
to a c
- e. Classroom instruction was excellent.
- f. Just simplify the le process. My suggestion: (1.) We broker initial contact with clients,  
wh (2.)  
Client connected to the system, (3.) The panel member to follow up. (4.) Get the job  
done. (5.) Everyone get pay.
- g. Would like to see more classes at KCRAR so more agents would have f opportunity to learn  
the op  
more about retrofit.
- h. Understand this is the wave of the future and happy to be a part of it! My clients re in  
currently  
southern Johnson county. Working on ting what I learned into to my hen I  
C impleme business.



- do have clients that want to buy older homes, the energy equation always comes into play. Want to be able to direct them to an automatic energy audit.
- i. I really enjoyed the program. The teachers were great. I am glad I got an opportunity to receive training though grant that was available. As a result I can trace at least one client back to the program. I not sure I would have gotten her if I didn't have the retrofit training. I have also gotten the opportunity to present the presentation people who may become clients several pe later date. It has given me an opportunity to at a s a result I have had be very relevant; people contact me to do itional advertisement of business such as radio, classes and ad newsletters. m
- j. Thought the teachers and class participation were above expectations. k. Excell nt program.
- l. Where ever the work is going on in this field, may be out n or in , make part of the grant of to money locate people there to dive in and get this special c oing. You d more than 1% to field e ne know bout this, union carpenter for 21 years work is ood out there and this is a as not chance for a new - old concept to kick off when the world really needs oing green d put to be people to work. rants should cover testing fees
- m. Very good training.
- n. LOVE IT!
- o. Training was adequate for me as I have a business and commercial construction background. Probaly inadequate for someone brand new to the field and looking w career. u for a n
- p. KUDOS to the training facilitator for lining up great instructors as well as providing opportunity for ha ds on application. M m
- q. AUDIT these programs offered by MEC. Havesomeone actually sit in from time to time to see h O o what is going on with FEDERAL DOLLARS spent. It is us this program was funded outrage with tax money.
- r. Quite well designed and implemented. The training program at MEC is well run and the training coordinator (Gay Le ) is very open to feedback and as a resource to get a good answer to any questions.
- s. GoodProgram but No job
- t. Keep up the good rks helping our community w o
- u. IT was a great training, very informative andpful hel



## **Mobile Meeting Summary**

Beyond The Bulb: Energy Efficiency Improvements in the Greater Kansas City Area

September 2012 – March 2013

### **Overview**

A series of 47 mobile meetings were held across the MARC region at farmers markets, hardware and home improvement stores, and other community events from September 2012 through March 2013 on behalf of EnergyWorks KC's Beyond The Bulb. The meetings focused on the energy-efficiency improvements that home and small business owners are likely to need per the following schedule:

- September – October 2012: Lighting and HVAC/furnace improvements
- November – December 2012: Air duct sealing and insulation
- January – February 2013: Water efficiency

The purpose of the mobile meetings included:

- Providing educational materials at the meetings that describe the key types of energy-efficiency improvements.
- Providing free, low-cost materials to consumers to help them make quick energy saving improvements to their homes or businesses.
- Inspire home and business owners to change the way in which they consume energy at home or work.
- Being a resource for EnergyWorks KC (EWKC) programs and other complementary energy savings programs and resources available for energy efficiency improvements in the region, including those accessible through the City of Independence, Kansas City BPU, and others.
- Pushing the EWKC goals and message to the region.
- Evaluating the effectiveness of both the Beyond the Bulb communications strategy and the gather information about the kinds of energy-efficiency improvements home and business owners are making.

A total of 2,054 people participated in the 47 mobile meetings over a 7-month period, for an overall average of 293 people per month.

TOPIC	DATE	COUNTY	VENUE	PARTICIPANTS
Lighting & HVAC/Furnace Efficiency	Sat., Sept. 8	Jackson	<b>KC Organics and Natural Food Market</b> , Minor Park, Kansas City, Mo.	19
	Sat., Sept. 8	Jackson	<b>Westlake Ace Hardware</b> , 444 SW Ward Blvd., Lee's Summit, Mo.	31
	Fri., Sept. 14	Clay	<b>Westlake Ace Hardware</b> , 157 Crown Hill Rd., Excelsior Springs, Mo.	4
	Fri., Sept. 14	Clay	<b>Westlake Ace Hardware</b> , 5945 NE Antioch Rd., Gladstone, Mo.	4
	Fri., Sept. 14	Jackson	<b>Westlake Ace Hardware</b> , 4545 S. Noland Road, Independence Mo.	4
	Sat., Sept. 22	Cass	<b>Midwest Lumber True Value Home Center</b> , 2207 N. State Rte. 7, Pleasant Hill, Mo.	26
	Sat., Sept. 22	Cass	<b>Westlake Ace Hardware</b> , 1735 E. North Ave., Belton, Mo.	20
	Sat., Sept. 22	Johnson	<b>Westlake Ace Hardware</b> , 15225 W. 87 <sup>th</sup> Pkwy., Lenexa, Ks.	100
	Sat., Sept. 22	Wyandotte	<b>Strasser True Value Hardware</b> , 910 Southwest	48

Air/Duct Sealing & Insulation	Blvd., Kansas City, Ks.			
	Sat., Sept. 29	Platte	<b>Jeff's True Value Hardware</b> , 2300 Kentucky Ave., Platte City, Mo.	22
	Sat., Sept. 29	Leavenworth	<b>Westlake Ace Hardware</b> , 3400 S. 4 <sup>th</sup> St., Leavenworth, Ks.	15
	Fri., Oct. 5	Jackson	<b>Badseed Farmer's Market</b> , 1909 McGee St., Kansas City, Mo.	39
	Sat., Oct. 6	Clay	<b>Gladfest Fall Festival</b> Gladstone, Mo.	125
	Sat., Oct. 6	Platte	<b>Parktoberfest</b> , Parkville, Mo.	6
	Thurs., Oct. 18	Jackson	<b>Sprint Center</b> , 1407 Grand Blvd, Kansas City, Mo.	13
	Sat., Nov. 3	Platte	<b>Jeff's True Value Hardware</b> , 2300 Kentucky Ave., Platte City, Mo.	20
	Sat., Nov. 3	Leavenworth	<b>Westlake Ace Hardware</b> , 3400 S. 4 <sup>th</sup> St., Leavenworth, Ks.	21
	Tues., Nov. 13	Jackson	<b>Buck O'Neil 100<sup>th</sup> Birthday Celebration</b> , Gem Theater, 1615 E. 18 <sup>th</sup> Street, Kansas City, Mo.	19
	Sat., Nov. 17	Cass	<b>Midwest Lumber True Value Home Center</b> , 2207 N. State Rte. 7, Pleasant Hill, Mo.	21
	Sat., Nov. 17	Jackson	<b>Westlake Ace Hardware</b>	23



<b>Air/Duct Sealing &amp; Insulation</b>			103 S. 291 Hwy Lee's Summit, Mo.	
	Sat., Nov. 17	Jackson	<b>Westlake Ace Hardware</b> 1205 N. 7 Hwy, Blue Springs, Mo.	10
	Sat., Nov. 17	Jackson	<b>Westlake Ace Hardware</b> 415 E 24 Hwy., Independence, Mo.	40
	Sat., Nov. 17	Wyandotte	<b>Strasser True Value Hardware</b> , 910 Southwest Blvd., Kansas City, Ks.	25
	Fri., Nov. 30	Jackson	<b>Sustainable Success Stories</b> , Kauffman Foundation, 4801 Rockhill Rd., Kansas City, Mo.	23
	Sat., Dec. 1	Johnson	<b>Westlake Ace Hardware</b> , 15225 W. 87 <sup>th</sup> Pkwy., Lenexa, Ks.	18
	Sat., Dec. 1	Johnson	<b>Westlake Ace Hardware</b> 120 N. Clairborne, Olathe, Ks.	23
	Sat., Dec. 1	Clay	<b>Westlake Ace Hardware</b> 157 Crown Hill Road, Excelsior Springs, Mo.	36
	Sat., Dec. 1	Clay	<b>Sutherlands</b> 901 S. 291 Hwy., Liberty, Mo.	18
	Sat., Dec. 1	Clay	<b>Westlake Ace Hardware</b> , 5945 NE Antioch Rd., Gladstone, Mo.	13
	Fri., Dec. 7	Jackson	<b>Badseed Farmers Market</b> , 1909	17

Water Efficiency			McGee St., Kansas City, Mo.	
	Sat., Dec. 8	Jackson	<b>KC Organics Farmer's Market,</b> Notre Dame de Sion High School, 10631 Wornall, Kansas Citv. Mo.	75
	Sat., Dec. 15	Jackson	<b>Toys for Tots, Gregg/Klice Community Center,</b> 1600 John "Buck" O'Neil Way, Kansas City, Mo.	60
	Sat., Jan. 12	Platte	<b>Jeff's True Value Hardware,</b> 2300 Kentucky Ave., Platte City, Mo.	15
	Sat., Jan. 12	Leavenworth	<b>Westlake Ace Hardware,</b> 3400 S. 4 <sup>th</sup> St., Leavenworth, Ks.	19
	Sat., Jan. 12	Clay	<b>Westlake Ace Hardware,</b> 5945 NE Antioch Rd., Gladstone, Mo.	14
	Sat., Jan. 12	Wyandotte	<b>Strasser True Value Hardware,</b> 910 Southwest Blvd., Kansas City, Ks.	19
	Sat., Jan. 26	Ray	<b>Ray County Library</b> 215 E Lexington Richmond, Mo.	4
	Sat., Jan. 26	Ray	<b>Larry's True Value</b> 210 S Thornton Richmond, Mo.	2
	Tues., Jan. 27	Jackson	<b>KC Chamber's Energy Environment Sustainability</b>	31

<b>Water Efficiency</b>			<b>Initiative</b> 30 W Pershing, Kansas City, Mo.	
	Fri., Feb. 1	Jackson	<b>Badseed Farmers Market, 1909</b> McGee St., Kansas City, Mo.	26
	Fri., Feb. 8	Jackson	<b>KC Remodeling Show</b> American Royal Center, 1800 Genessee St., Kansas City, Mo.	150
	Sat. Feb. 9	Jackson	<b>KC Remodeling Show</b> American Royal Center, 1800 Genessee St., Kansas City, Mo.	150
	Fri. Mar. 1	Johnson	<b>Johnson County Home Show</b> Overland Park Convention Center, 6000 College Blvd., Overland Park, Ks.	103
	Sat. Mar. 2	Johnson	<b>Johnson County Home Show</b> Overland Park Convention Center, 6000 College Blvd., Overland Park, Ks.	250
	Sat., Mar. 9	Jackson	<b>Greater Kansas City International Auto Show</b> Bartle Hall Convention Center, Kansas City, 301 West 13th St., Kansas City, Mo.	23
	Sun., Mar. 10	Jackson	<b>Greater Kansas City International Auto Show</b> Bartle Hall	31

		Convention Center, Kansas City, 301 West 13th St., Kansas City, Mo.		
	Sat., Mar. 23, 2013	Jackson	<b>Greater Kansas City Home Show</b> Bartle Hall Convention Center, Kansas City, 301 West 13th St., Kansas City, Mo.	279

## Exhibits and Handouts

The exhibits and handouts provided at the meetings included:

- Poster/Display Boards
  - o Beyond The Bulb Overview
  - o Lighting
    - ? Overview
    - ? Lighting efficiency tip for homeowners
    - ? Lighting efficiency tip for business owners
  - o HVAC/furnace efficiency
    - ? Overview
    - ? HVAC/furnace efficiency tip for homeowners
    - ? HVAC/furnace efficiency tip for business owners
  - o Air/duct sealing and insulation
    - ? Overview
    - ? Air and duct sealing and insulation efficiency tip for homeowners
    - ? Air and duct sealing and insulation efficiency tip for business owners
  - o Water efficiency
    - ? Overview
    - ? Water efficiency tip for homeowners
    - ? Water efficiency tip for business owners
- Brochures
  - o Lighting brochures per meeting
  - o HVAC/furnace efficiency brochures per meeting
  - o Air and duct sealing and insulation
  - o Water efficiency
- Give-a-ways
  - o 4-pack of compact fluorescent light bulbs (15 packs per meeting)
  - o Programmable thermostat (2 per meeting)
  - o Caulking Kit (15 kits per meeting)

## Survey Results

An on-line survey was made available to mobile meeting participants and the Greater Kansas City area via [www.beyondthebulb.org](http://www.beyondthebulb.org). The survey was open from September 5, 2012 to May 15, 2013. A total of 961 responded to the survey and provided responses to the eight questions listed below. Summary tables that describe the total survey results in general and by county are attached to this report.

- **Which of the following actions have you taken to save energy and save money on your lighting? (select up to 3 actions).**
  - o Switched from incandescent lights to CFLs, LEDs, or halogens
  - o Added timers or motion sensors to my lights
  - o Changed my T12 tubular fluorescent lights to T8s or T5s
  - o Turned off lights when leaving a room
  - o Used more natural light than artificial light
  - o Had an energy assessment
- **Which of the following actions have you taken to save energy and save money on your heating and cooling system? (select up to 3 actions).**
  - o Replaced my furnace or boiler with a high-efficiency model
  - o Set the thermostat warmer in summer; cooler in winter
  - o Cleaned or replaced my furnace and air conditioner filters
  - o Installed a programmable thermostat
  - o Calibrated my thermostat
  - o Had an energy assessment
- **Which of the following additional actions have you taken to save energy and save money on your heating and cooling system? (select up to 3 actions).**
  - o Weather stripped and caulked leaky doors and windows
  - o Checked the insulation on my attic floor or other areas
  - o Caulked and sealed leaky ducts and basement cracks
  - o Checked my home or business for air leaks
  - o Added insulation to my attic floor or other areas
  - o Had an energy assessment
- **Which of the following actions have you taken to conserve water? (select up to three actions)**
  - o Installed low-flow showerheads
  - o Planted a rain garden or installed a rain barrel
  - o Checked and fixed leaky toilets and faucets
  - o Added a toilet bank or dam
  - o Installed faucet aerators
  - o Started taking shorter showers
- **What has inspired you to invest in energy-saving habits, products or improvements? (select up to 3 inspirations)**
  - o Promotions on billboards, TV, radio, or online
  - o Tax incentives or rebates
  - o Results of an energy assessment of my home or business
  - o Free energy-efficiency improvement supplies
  - o Opportunities to save money on my utility bills
  - o ENERGY STAR-qualified products
- **How would you describe yourself (select 1 description)**
  - o Homeowner

- o Renter
  - o Business owner
  - o Other
- If you'd like to receive more information about how you could save energy and money on your lighting, heating and cooling system, or water usage, type your email address in the space below.
- What is your zip code?

## Staff Notes

Participants' comments noted from staff at the meetings included:

- Preference for use of the term "high-efficiency showerheads" rather than "low-flow showerheads" due to the potential negative connotation of the phrase "low-flow".
  - o The survey uses the term "low-flow". We might want to change to "high-efficiency".
- CFL bulbs turn on slowly – You could finish your task before they come on. How do you get access to the faster responding version (next level of energy-efficient upgrade)?
- CFLs don't last.
- There is too much mercury in CFLs and they don't produce enough light – Prefer 6500 (sunlight equivalent) energy-efficient bulbs.
- Inspirations: Conscious about the environment - Top reason for making changes. Saving money, etc is a secondary benefit. Energy saving action is I got rid of my car and take transit or zip car.
- We have changed our appliances to energy-efficient models (freezer, refrigerator, washer/dryer).
- Replaced all windows in our 1971 house. We have saved so much money on our heating and cooling!
- I'm walking more to save energy.
- My landlord makes his homes more energy-efficient to make them more attractive to potential renters.
- We installed a heat pump, solar fan and just installed a new energy-efficient patio door.
- Reason for making a change is "saving the environment". Environment and saving money are equal.
- We have replaced all of our windows with energy-efficient windows.
- Have installed high-efficiency patio doors.
- We're trying to go solar!
- Have replaced all of our windows with energy-efficient ones.
- Have installed new siding glass door on our home, double-pane windows, and a high-efficiency toilet. Was inspired by the sales guy at the hardware store. My toilet was broken.

- My home is new and already built to be energy-efficient.
- Tinted the windows and added solar screens.
- Just built a brand new, energy-efficient house - No need for caulk, etc.
- We no longer use gas to heat our home. We have converted it entirely to electricity - Bills have dropped 50%.
- Put film over our windows and use dark shades.
- Put in new windows.
- Have weather stripped my garage doors and put plastic over my windows.
- Replaced my windows - double-pane. Have energy-star appliances, including freezer, range, etc. Have energy-efficient front door and washer/dryer.
- Took action because it's the right thing to do. Have already changed out all my switches, windows, insulation, roof, etc.
- Have new windows throughout the house.
- We use wood to heat our home.
- My house was built in 1942 and we just had a programmable thermostat installed!
- Using fans to better circulate the air in my home.
- Have changed the float ball in my toilet.
- My apartment complex makes the needed energy efficiency improvements (caulking, weather stripping, etc.) for me.
- We don't have a furnace. We have a heat pump.
- We're using a wood burning stove.
- We have replaced all of our windows and are inspired to save energy to help the environment.
- Inspired to save energy to conserve natural resources and be a responsible citizen.
- I'm making changes for comfort and to save money.
- We use energy very conservative with our energy use and will install new windows this spring.
- We've sealed our windows with plastic.
- We've replaced our sliding glass doors.
- What inspires us to save energy is doing the right thing for the environment
- New roof and sent the old roof to get recycled. I do not like cfl light bulbs because they are hazardous materials. I save energy for natural resource conservation.
- We are heating our home via fireplace and have installed copper tubing to help the heated air travel through our home.
- We are trying to install solar panels on our home.
- We have added new windows.

- Heating entirely with wood
- Purchased an infrared heater and haven't needed to turn the furnace on yet this year!
- Personal philosophy: live as light on the land as we can
- Saving 25% on light bill by changing all of light bulbs to LED. Also using bath water to provide water for flower garden.
- Naturalizing my lawn so I don't need to water the grass - Using wild strawberries, violets, native clematis (sp?), and Virginia creeper instead of grass.
- We had someone come out and program our irrigation system to make it more efficient.
- Inspiration: it's the right the thing to do
- Blocked off chimney with cardboard to save money/energy. Also turned off vents.
- Inspiration: resources are finite - save the earth
- Except on one of the questions we are doing more than 3 things - so I prioritized the activities I thought would make the most impact. Also, on the last question, I think one of the choices should be "because I/we care about doing what's best for our environment" -- or something along those lines.
- Use the t8 bulbs as a visual aid for selling to customers. Helps explain why they should do it.
- Contact me (Ivan Minnis, Jr.) for an energy assessment at [iminnisjr@yahoo.com](mailto:iminnisjr@yahoo.com).
- KCPL cuts our rates in half because we have a second heat pump installed for the upstairs
- Inspiration: Don't want to take more than I need to on earth. Also supplementing heating needs with a wood stove. Trying to move to solar.
- 1500mAh is 1,500 milliamp-hours, its basically a measurement of how long the battery might last. larger number is more life. i wouldn't worry about putting 6v from these panels into your phone, as the nominal voltage for a USB cord is around 5v anyway. the phone will be the smarts of your charger, it should turn the charge off when they're done. as for the amperage, the solar lights' panels are probably puny and can't be more than 300mAh each. this will not cook your phone.
- Old fridge not energy star, new fridge is but has much shorter life span. The old fridge is still going. How is this saving when have to replace more often? Fills up landfills do to shorter life span.
- Check out How Smart Program in Hays, Kansas - Do retrofits, less utility provider competition.
- Business: Rooftop system that's automated control, shut down unused parts of building, demonstrate high-efficiency lighting use to customers.
- [Collingwoodp@conedsolutions.com](mailto:Collingwoodp@conedsolutions.com) - interested in energy assessment for schools - any educational programs available? We met at KC Chamber event on 1/29/2013.



- Business inspirations: Save money and demonstrate energy-efficiency products to clients.
- Are EWKC and the partnering utilities pursuing additional funding for a grant extension?
- Inspiration: It's the right thing to do. We donate to the arbor foundation, compost, buy local, and plant trees.
- I was inspired by a grade school teacher in 1971 and I have been energy conscious ever since
- Waiting for solar incentives. Do-it-yourself solar is where the future is because today solar investments are \$20,000 and hard for the middle class to afford.
- Re-using our gray water to flush toilet and water the plants.
- Really enjoying my tankless water heater!
- Replaced windows and installed a 95.6% high efficiency furnace
- Got new siding and it included a vapor barrier. Installed new roof and got a reflective barrier to save on heating/cooling costs.
- Changed from metal roof to shingled and it cut our energy bill waaaay down!
- 64109 is not my zip code - it's 64116
- I am inspired to invest in energy saving habits to help the environment
- We have replaced windows
- Just want to do right thing.
- We have a dual-flush toilet.
- Using more natural light via our sun room.
- Using a tank-less water and have really noticed a savings!
- We're geo-thermal and use water from our pond to water the lawn.
- Can tankless water heaters be used with gas and/or electricity?
- Replaced doors and windows and installed dual flush toilets
- We have a farm house and save energy by closing the upstairs.
- Inspiration: use less/save natural resources
- Heating our home with radiant flooring and a wood stove. Inside temperature never varies more than one degree.
- We purchased an on-demand water heater and our bill dropped \$125/month!
- Inspiration: Right thing for the planet.

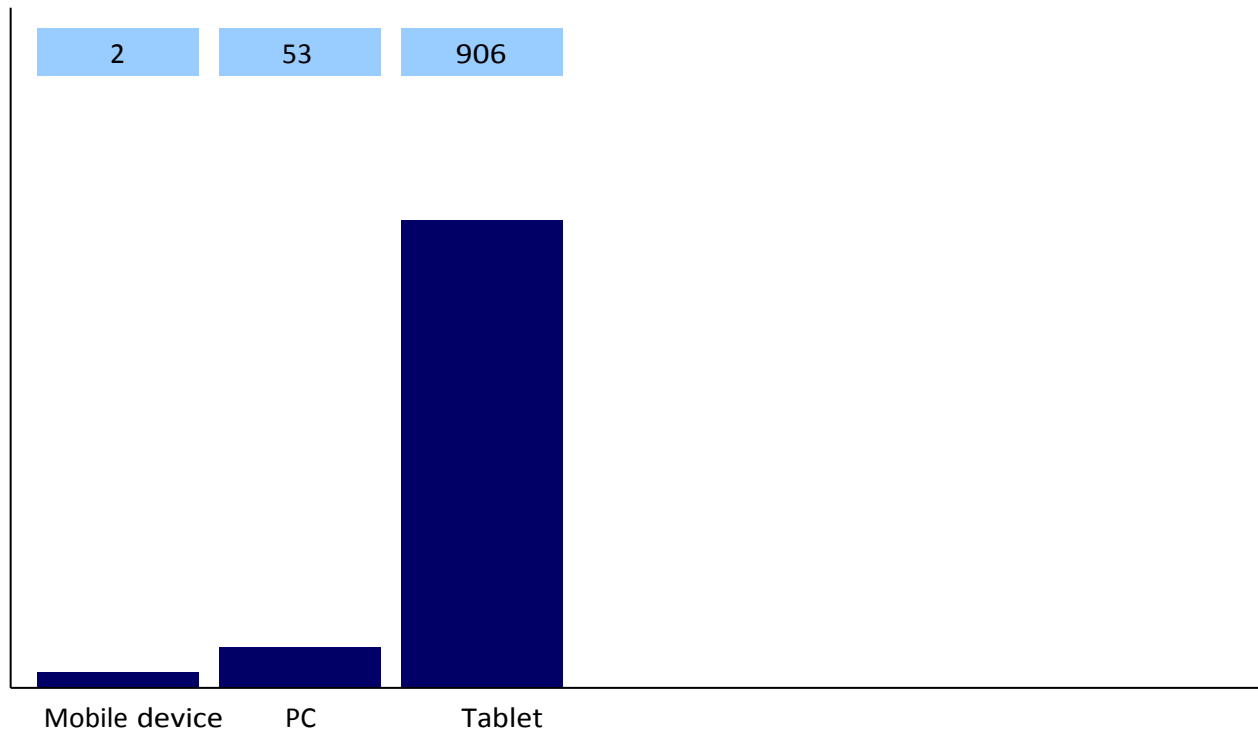


### Results for survey: Beyond the Bulb

This survey is currently **closed**. Open date: 09-05-2012. Close date: 05-15-2013. Number of surveys taken: 961. (excludes tests)

---

#### By Device

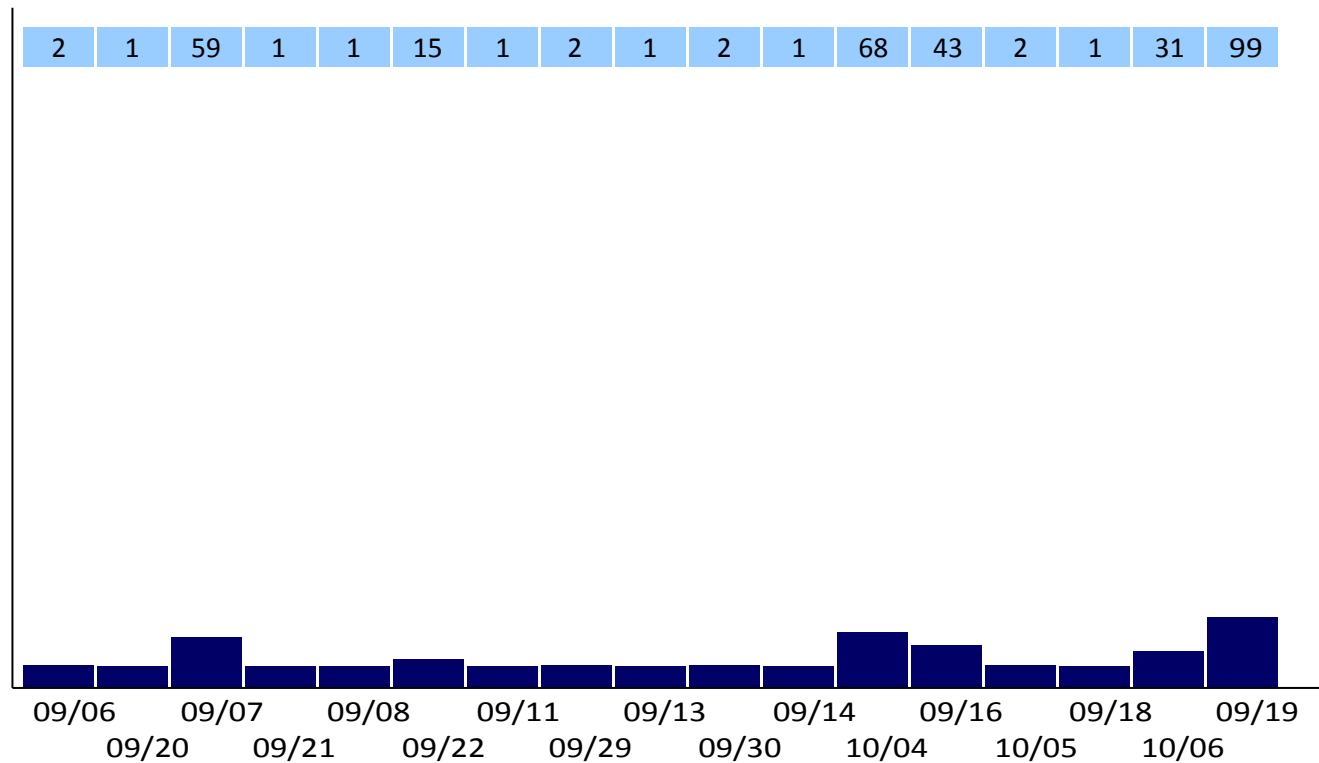




### Results for survey: Beyond the Bulb

This survey is currently **closed**. Open date: 09-05-2012. Close date: 05-15-2013. Number of surveys taken: **961**. (excludes tests)

#### By Date

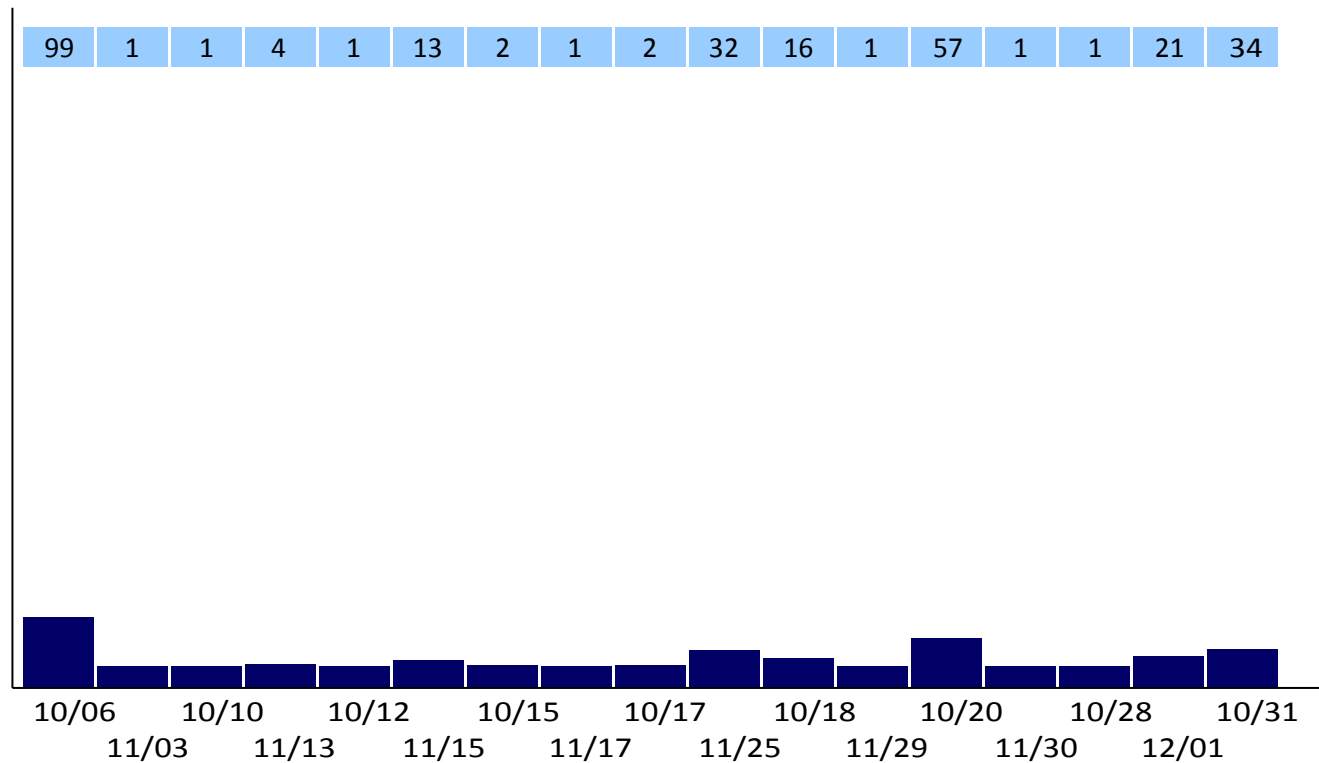




### Results for survey: Beyond the Bulb

This survey is currently **closed**. Open date: 09-05-2012. Close date: 05-15-2013. Number of surveys taken: 961. (excludes tests)

#### By Date

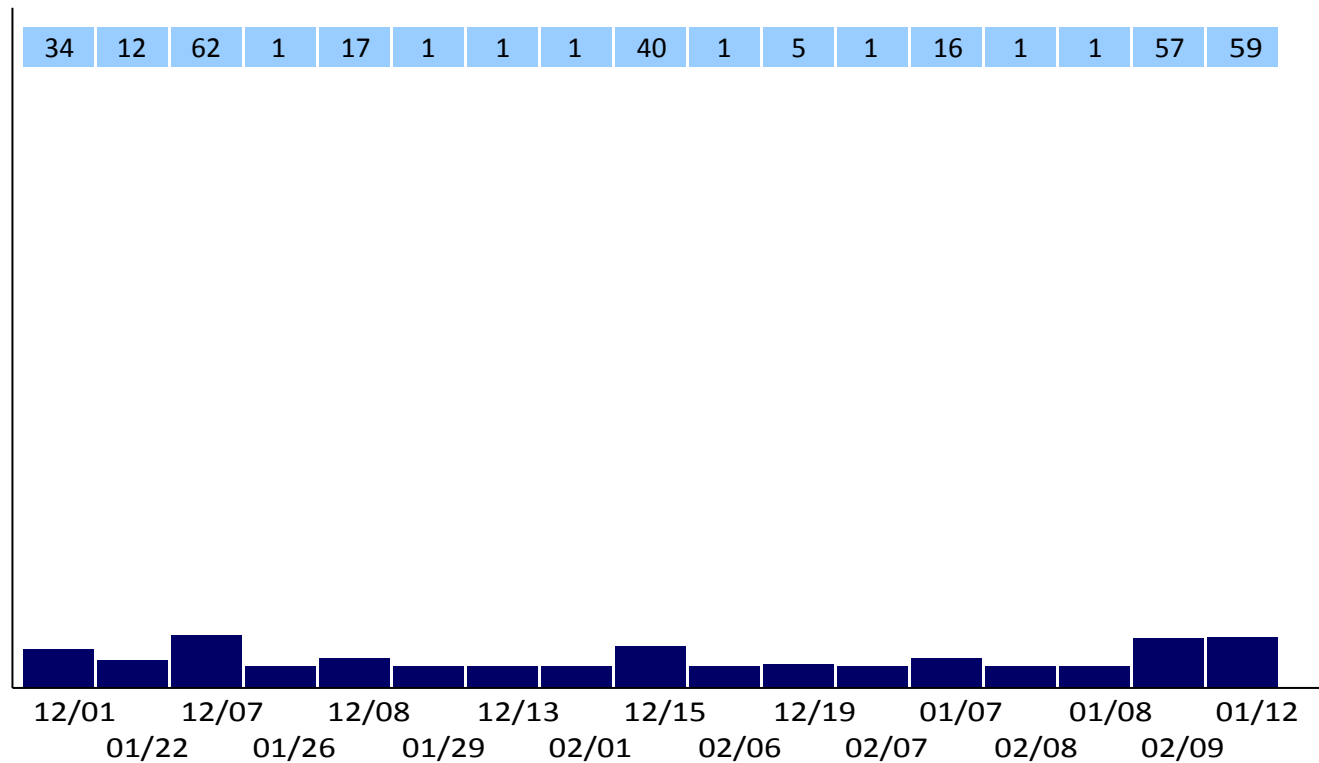




### Results for survey: Beyond the Bulb

This survey is currently **closed**. Open date: 09-05-2012. Close date: 05-15-2013. Number of surveys taken: 961. (excludes tests)

### By Date

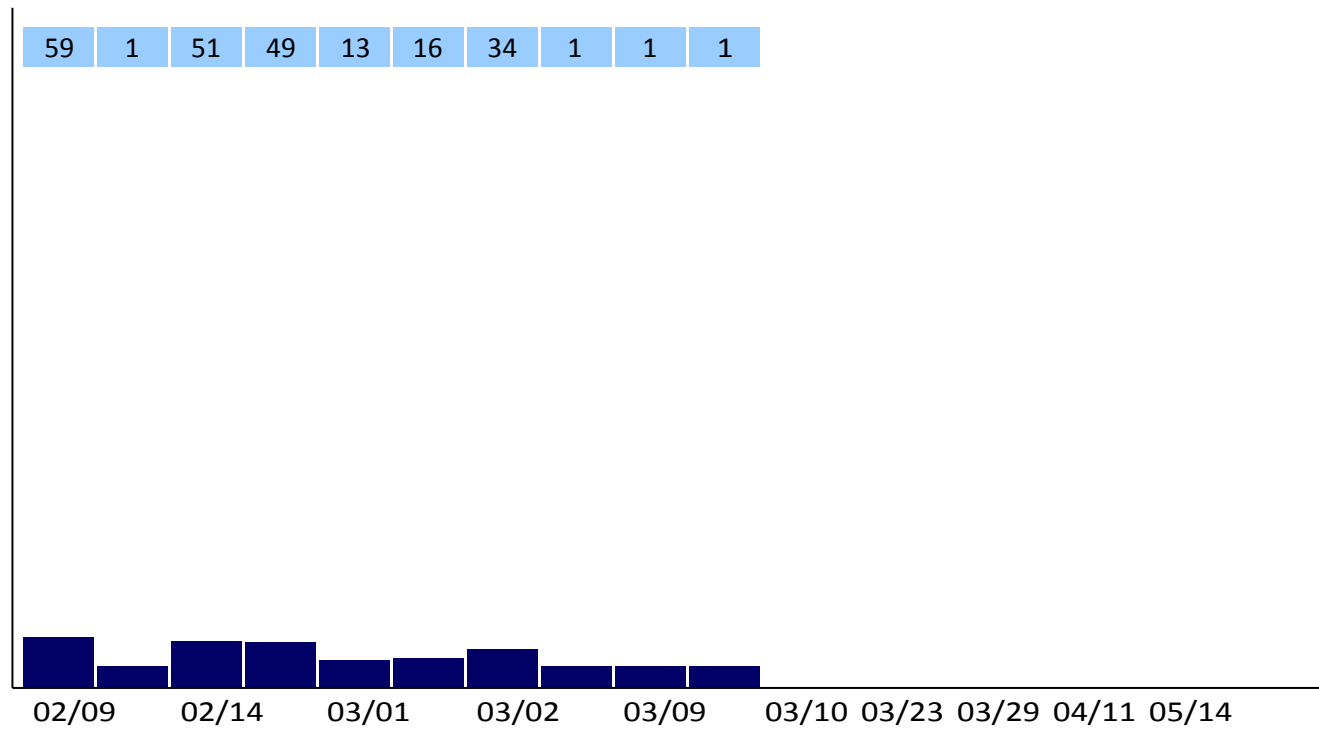




### Results for survey: Beyond the Bulb

This survey is currently **closed**. Open date: 09-05-2012. Close date: 05-15-2013. Number of surveys taken: 961. (excludes tests)

#### By Date

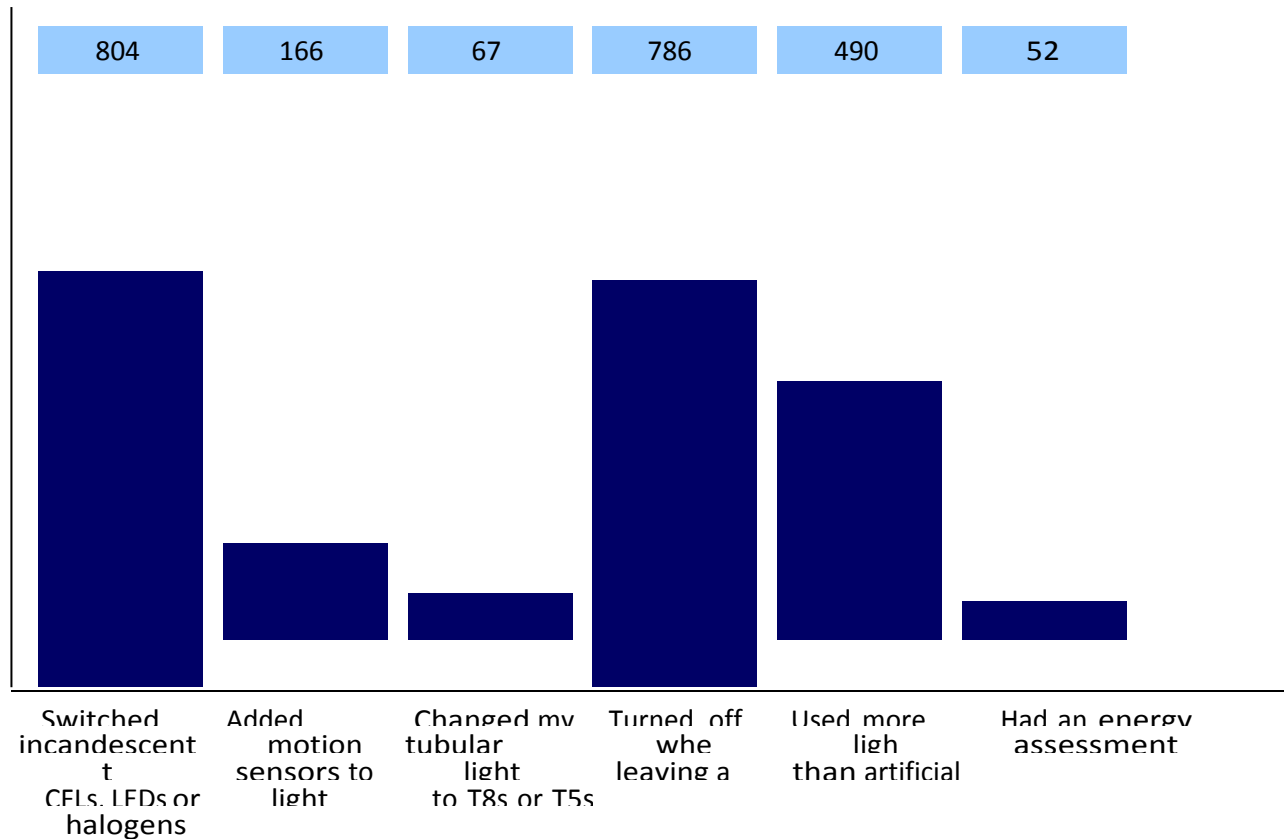




### Results for survey: Beyond the Bulb

This survey is currently **closed**. Open date: 09-05-2012. Close date: 05-15-2013. Number of surveys taken: 961. (excludes tests)

#### 1. Actions taken to save on lighting

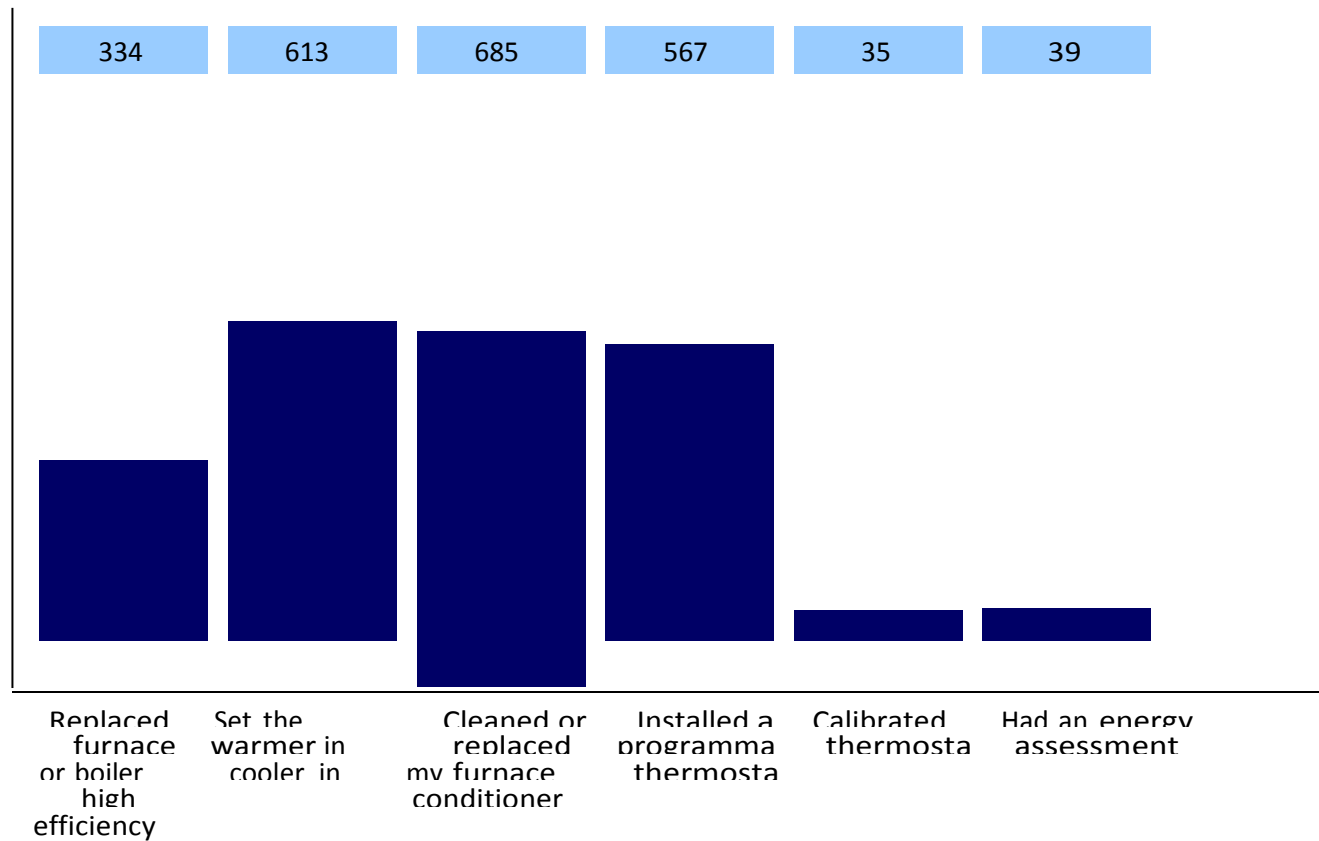




## Results for survey: Beyond the Bulb

This survey is currently **closed**. Open date: 09-05-2012. Close date: 05-15-2013. Number of surveys taken: 961. (excludes tests)

### 2. Actions taken to save on heating and cooling



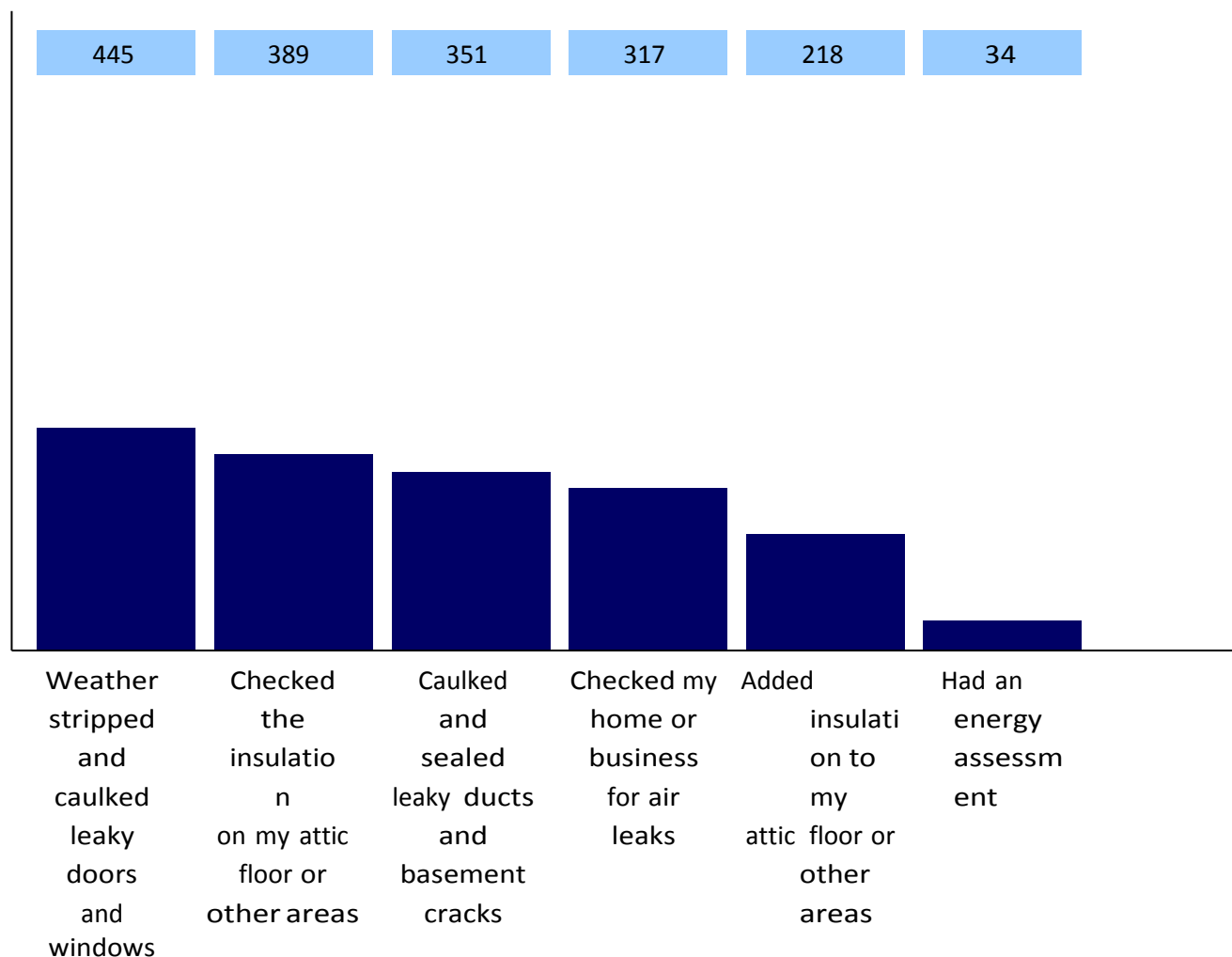




### Results for survey: Beyond the Bulb

This survey is currently **closed**. Open date: 09-05-2012. Close date: 05-15-2013. Number of surveys taken: **961**. (excludes tests)

### 3. Actions taken to save on heating and cooling

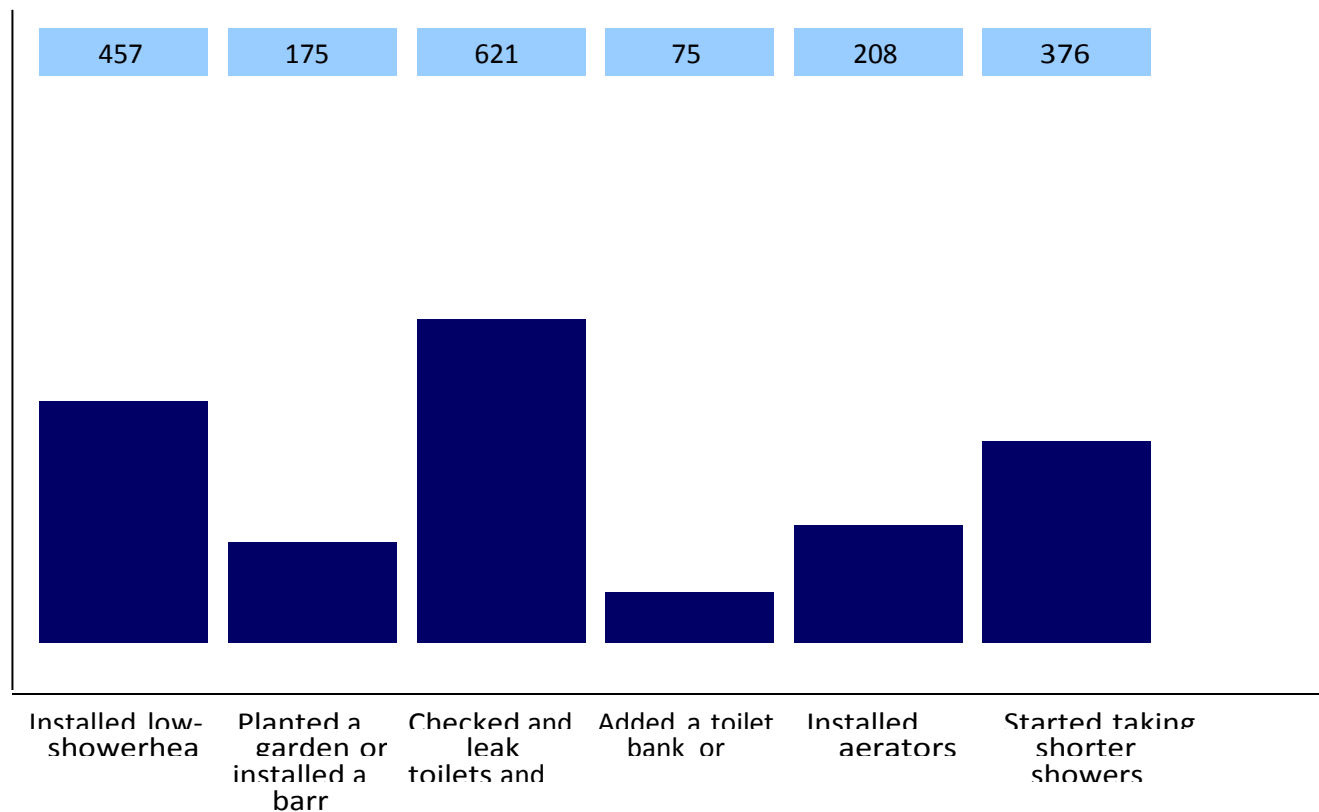




### Results for survey: Beyond the Bulb

This survey is currently **closed**. Open date: 09-05-2012. Close date: 05-15-2013. Number of surveys taken: 961. (excludes tests)

#### 4. Actions taken to conserve water

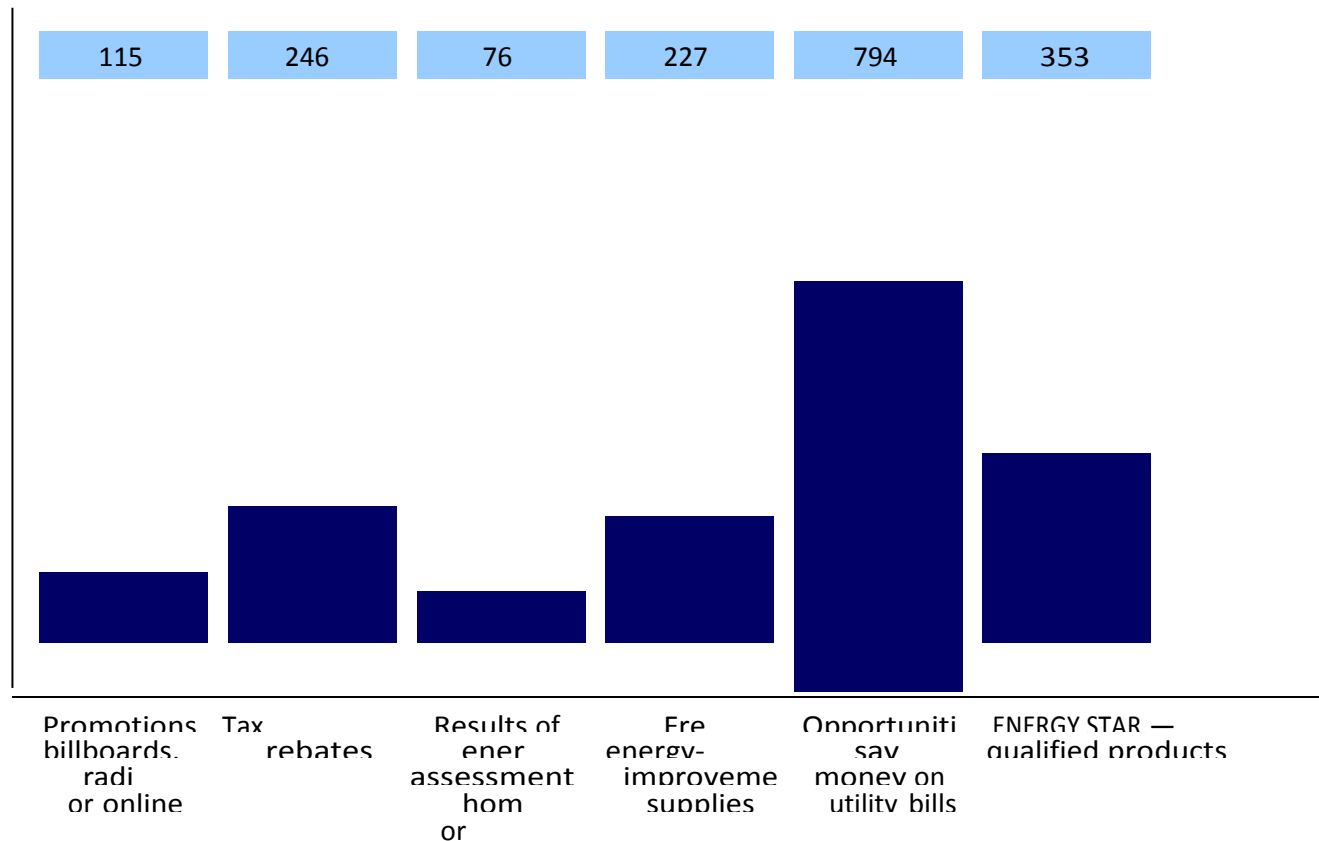




### Results for survey: Beyond the Bulb

This survey is currently **closed**. Open date: 09-05-2012. Close date: 05-15-2013. Number of surveys taken: **961**. (excludes tests)

### 5. Here's what our survey participants say are their inspirations for investing in energy-efficiency improvements for their homes or businesses.

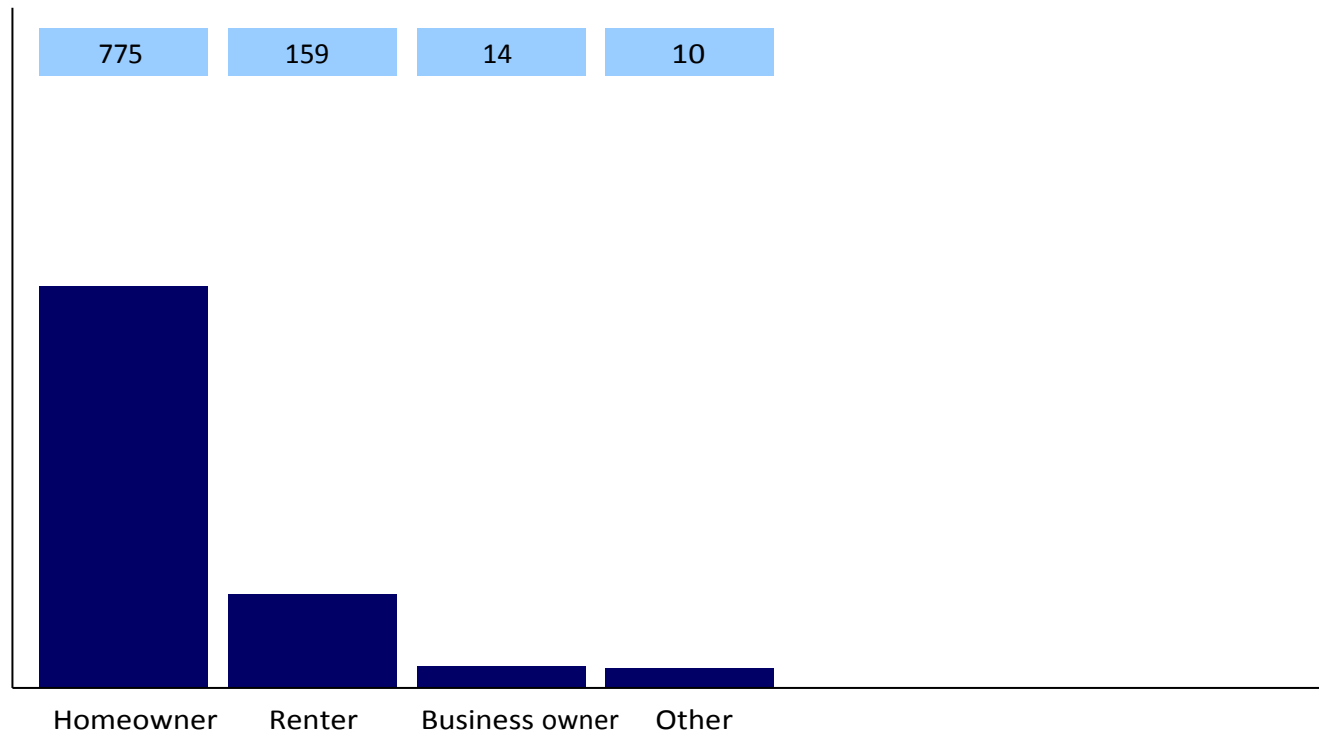




### Results for survey: Beyond the Bulb

This survey is currently **closed**. Open date: 09-05-2012. Close date: 05-15-2013. Number of surveys taken: 961. (excludes tests)

#### 6. Describe yourself



**EWIC's**

**Beyond**

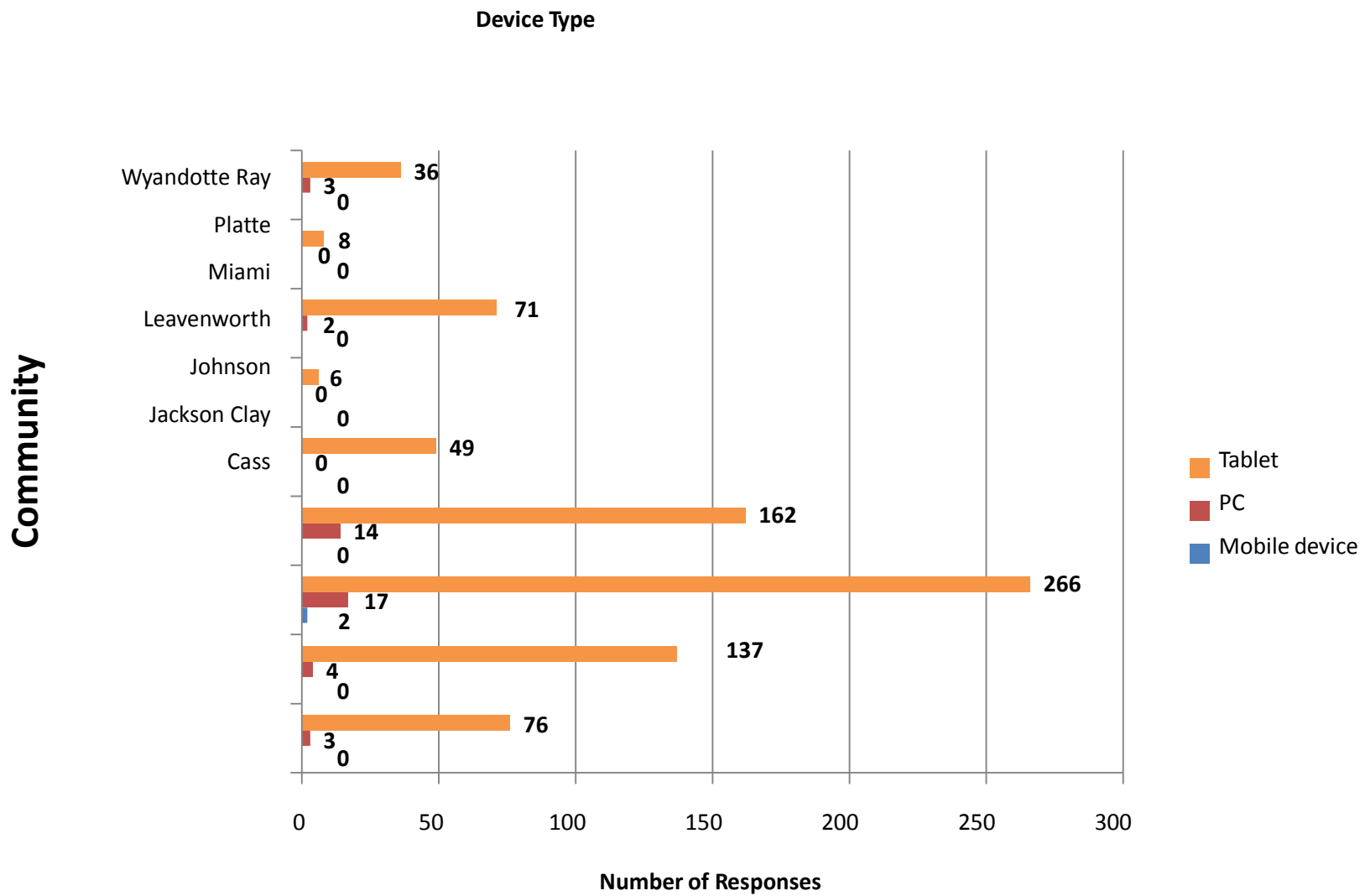
**the**

**Bulb**

**InTouch Live! Results by County**

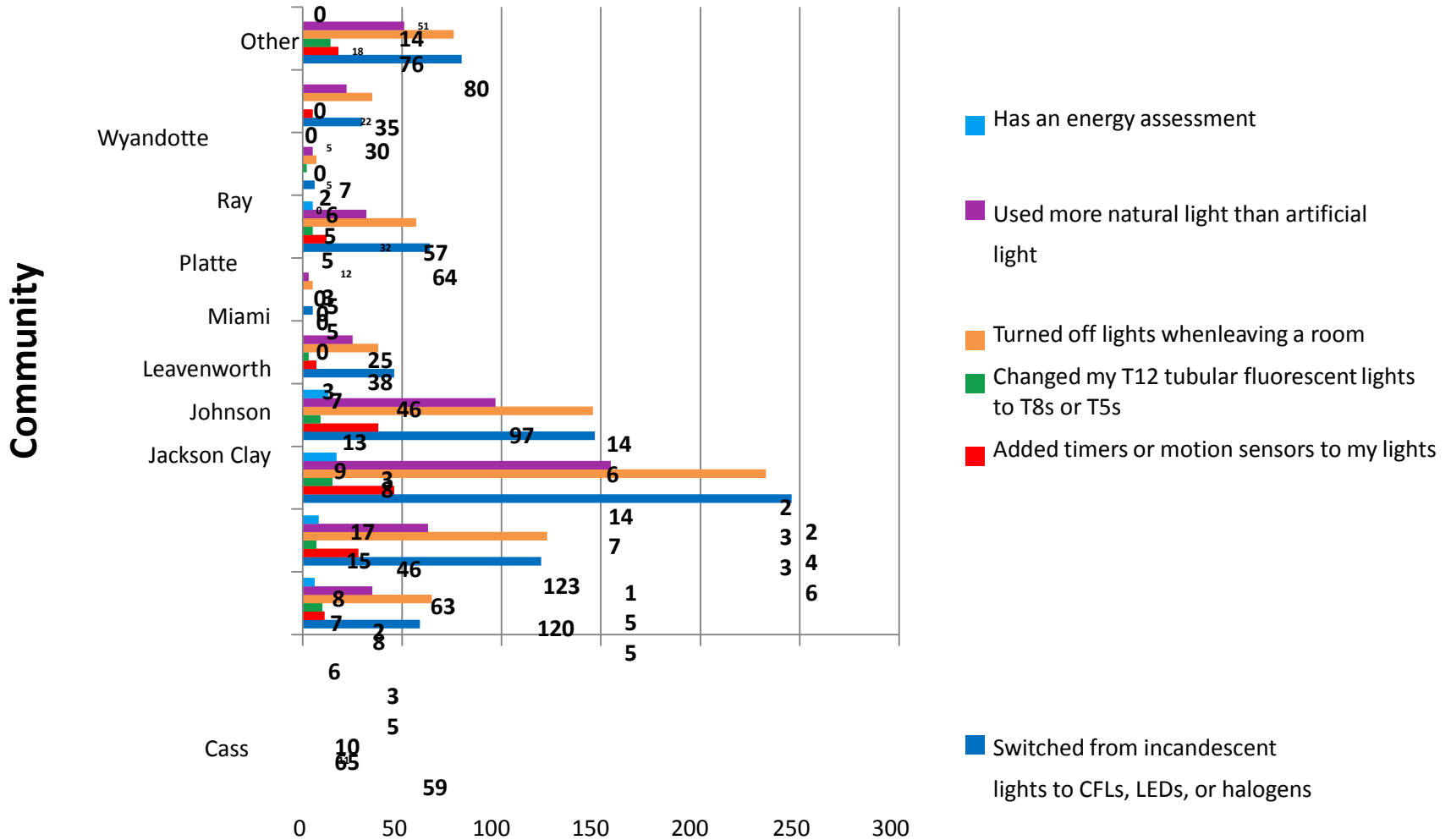
**09-05-2012 through 05-15-2013**

**Number of Surveys Taken: 961**



## Which of the following actions have you taken to

save energy and money on you lighting?



**Number of Responses**

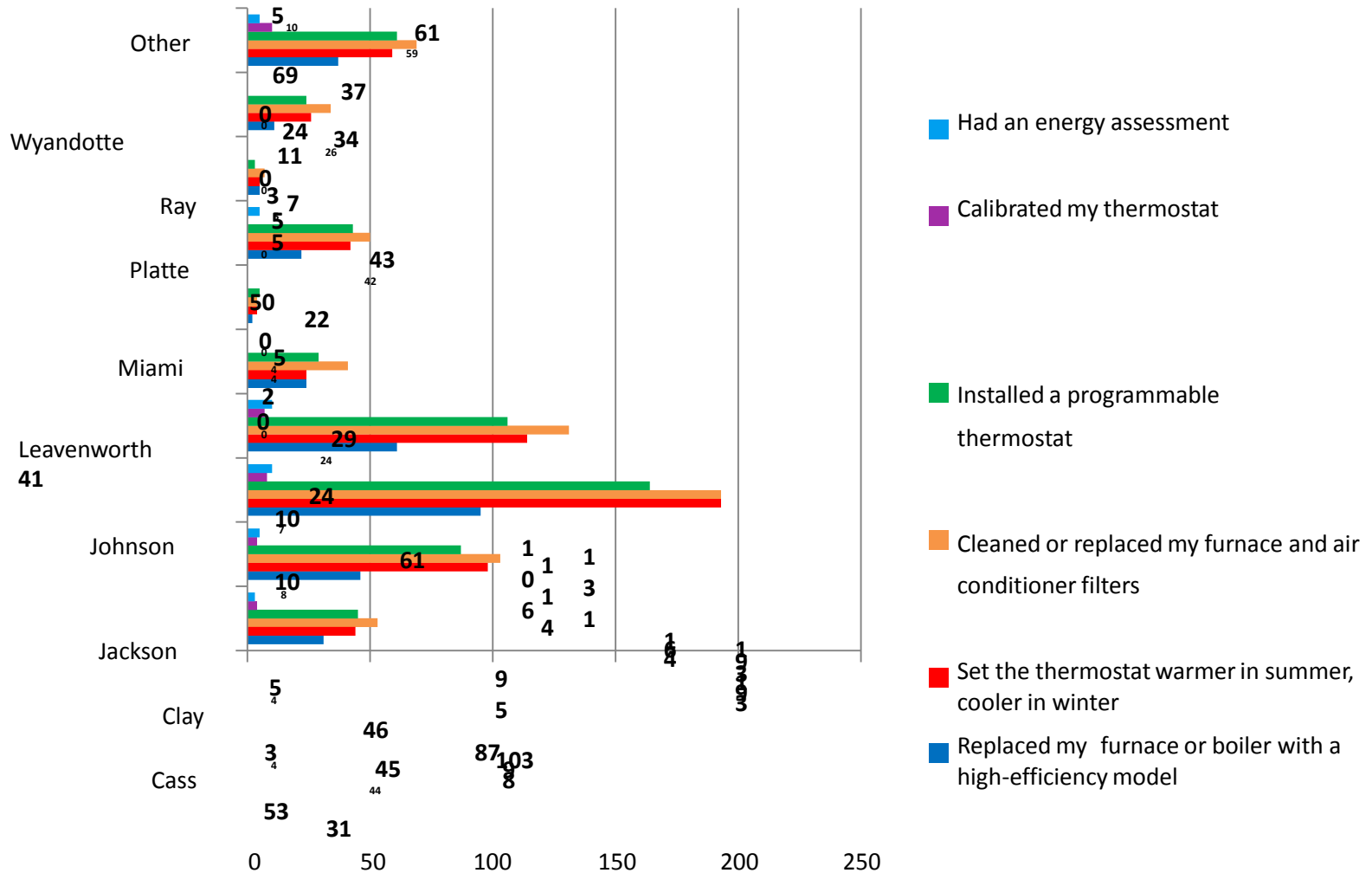


# Which of the following actions have you taken

to save energy and money on your heating and

cooling system?

Community

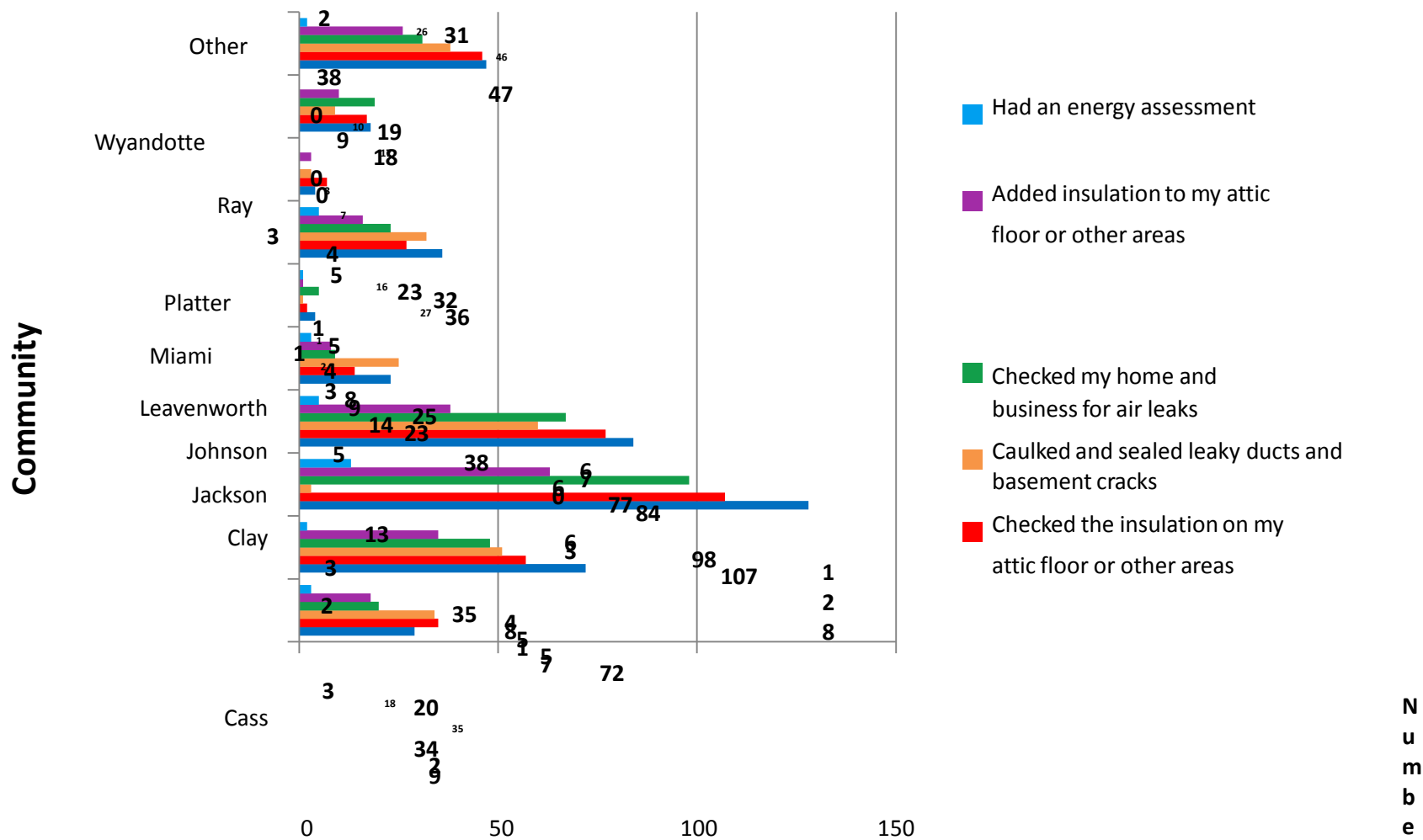


**Number of Responses**

# Which of the following additional actions have

you taken to save energy and money on your

heating and cooling system?



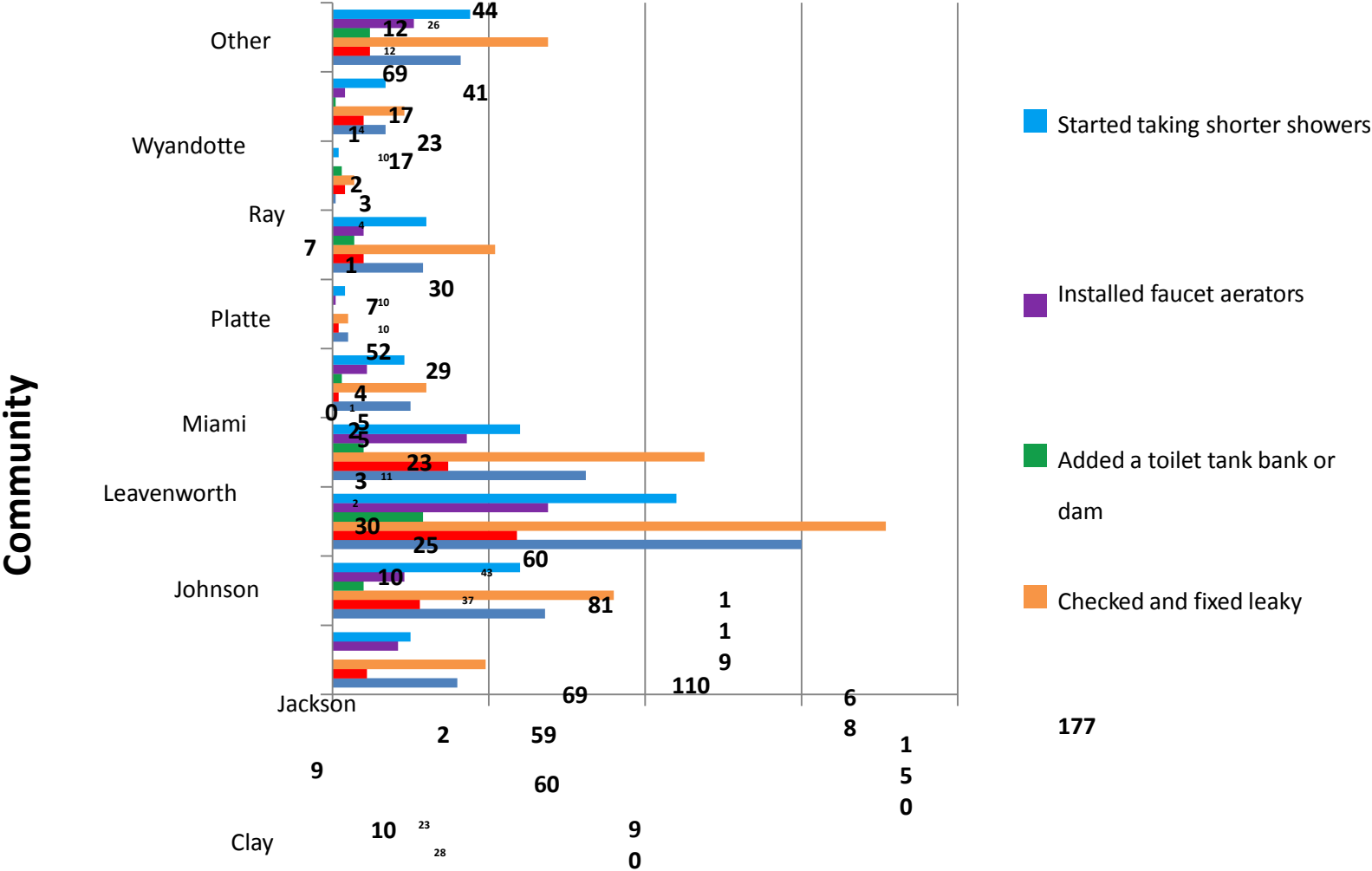
# Which of the following additional actions have

Number of Responses

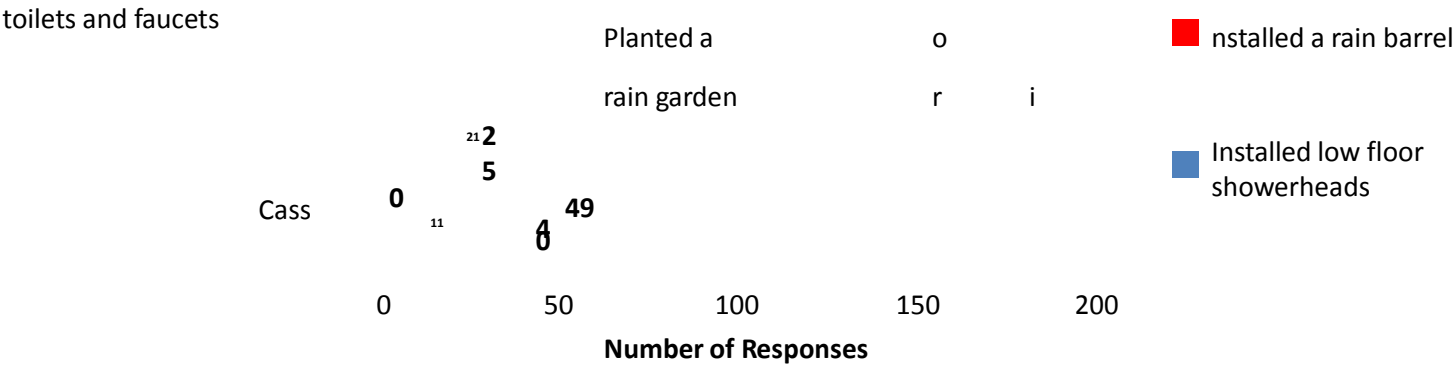
Weather stripped and caulked leaky doors and windows

# Which of the following actions have you taken

to conserve water?

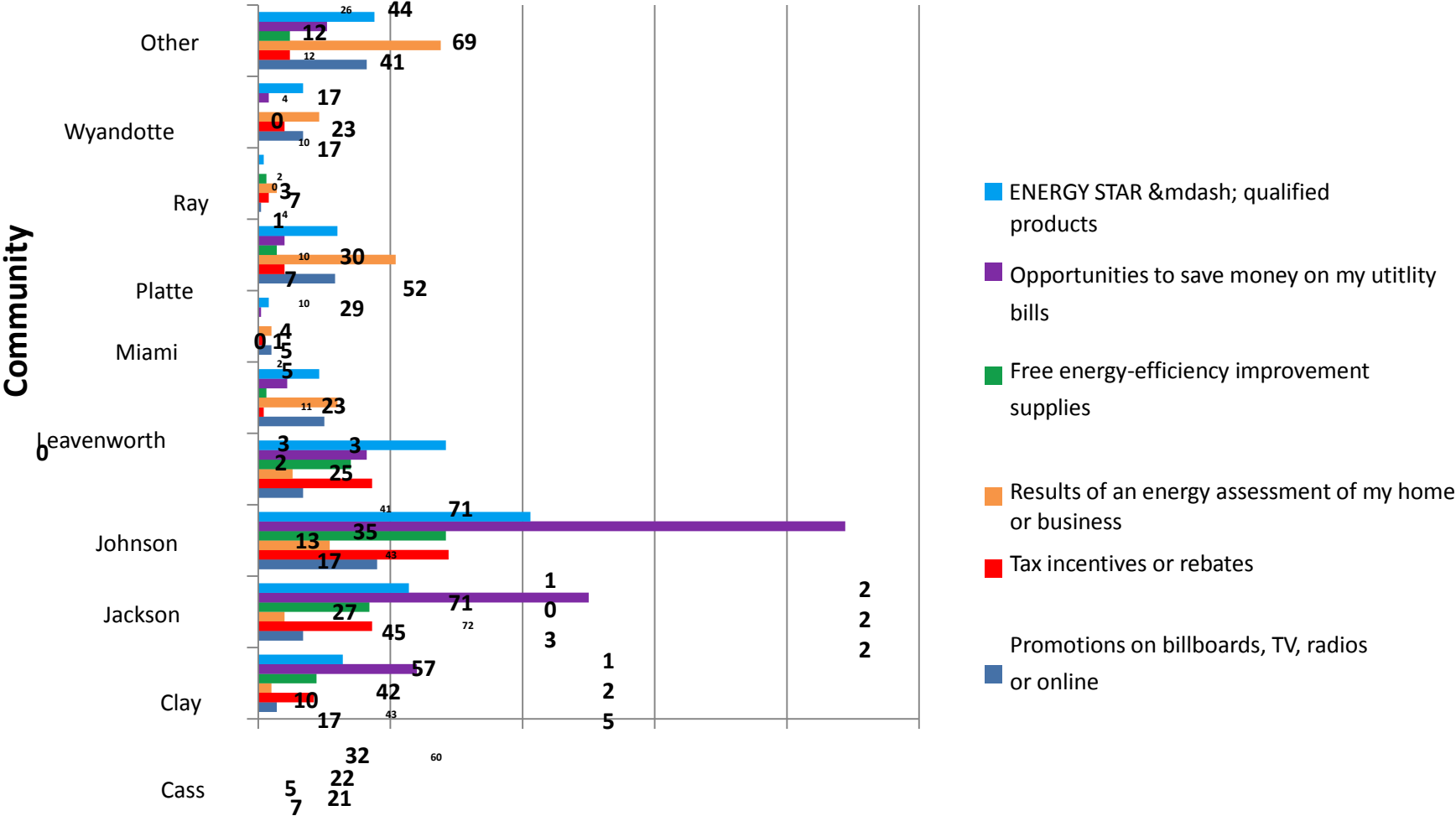


# Which of the following actions have you taken



What has inspired you to invest in energy-

saving habits, products or improvements?



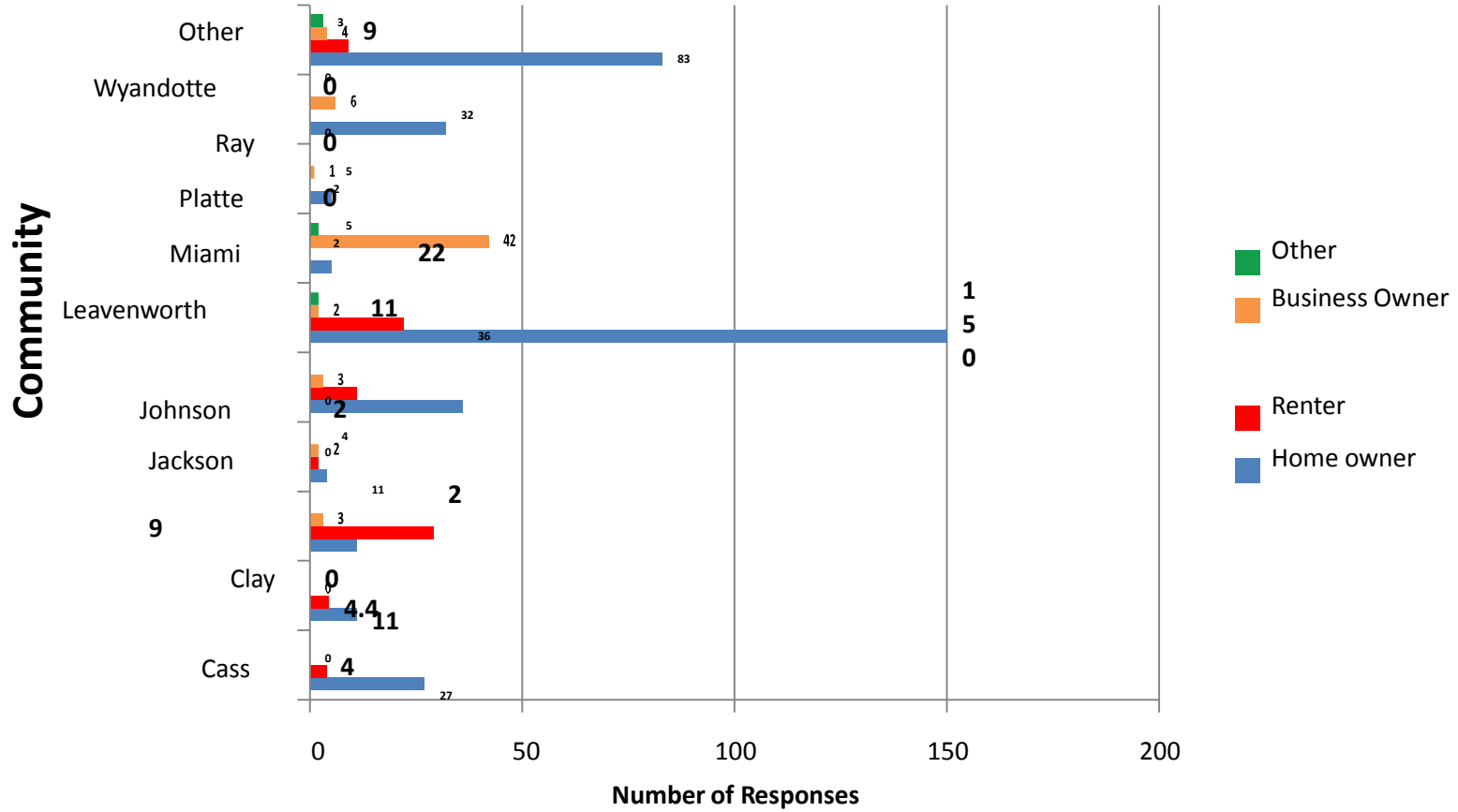
0      50      100      150      200      250

**Number of Responses**



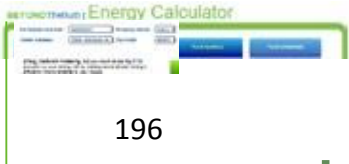
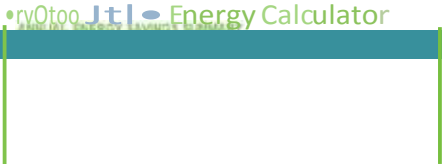
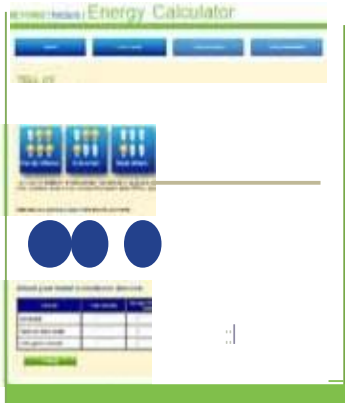
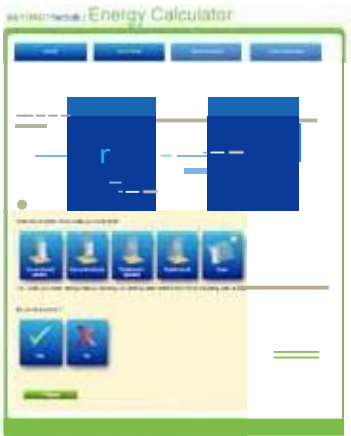
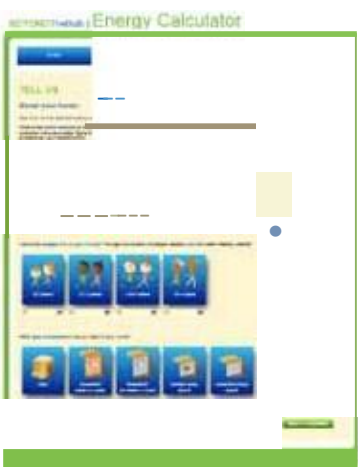
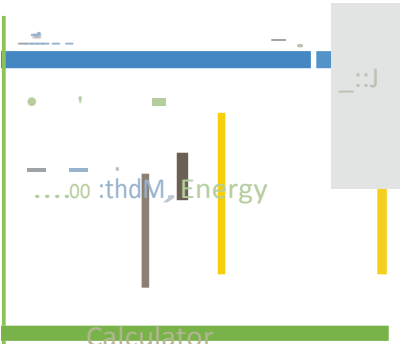
How would you

describe yourself?







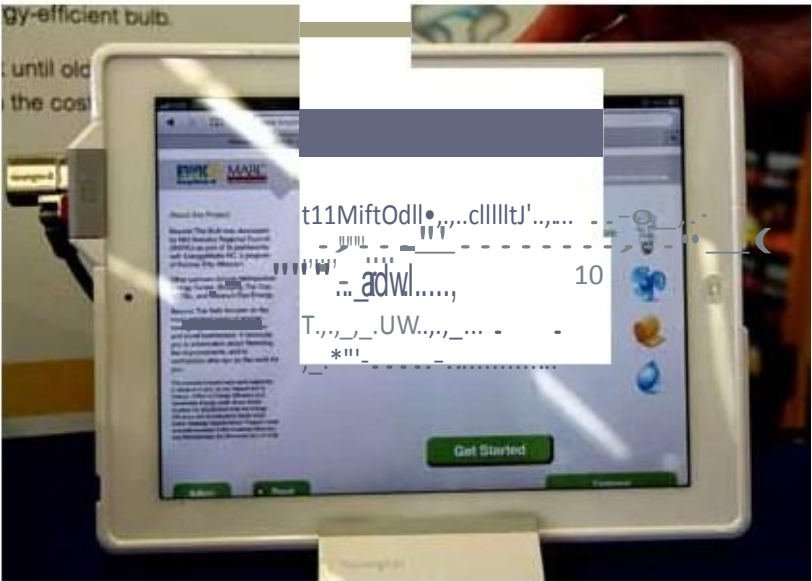
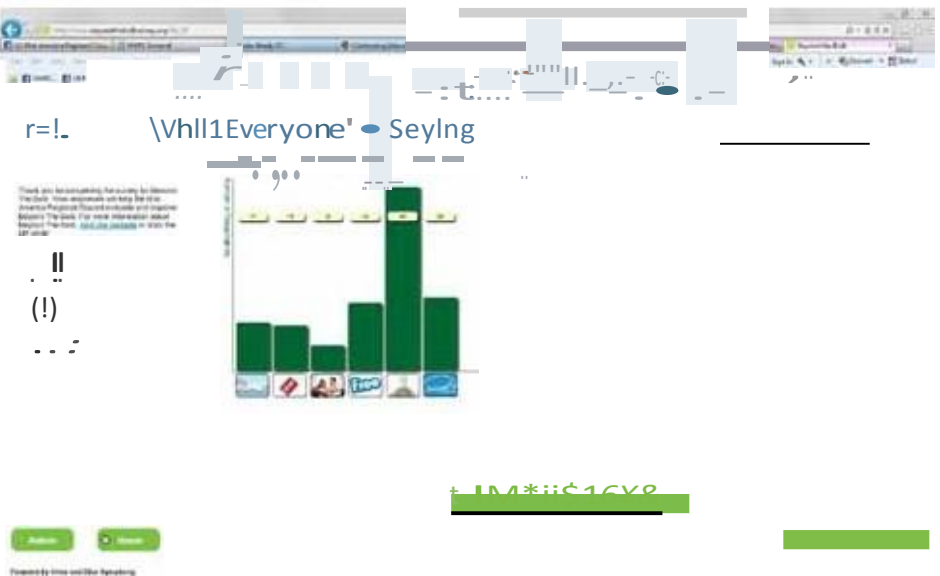
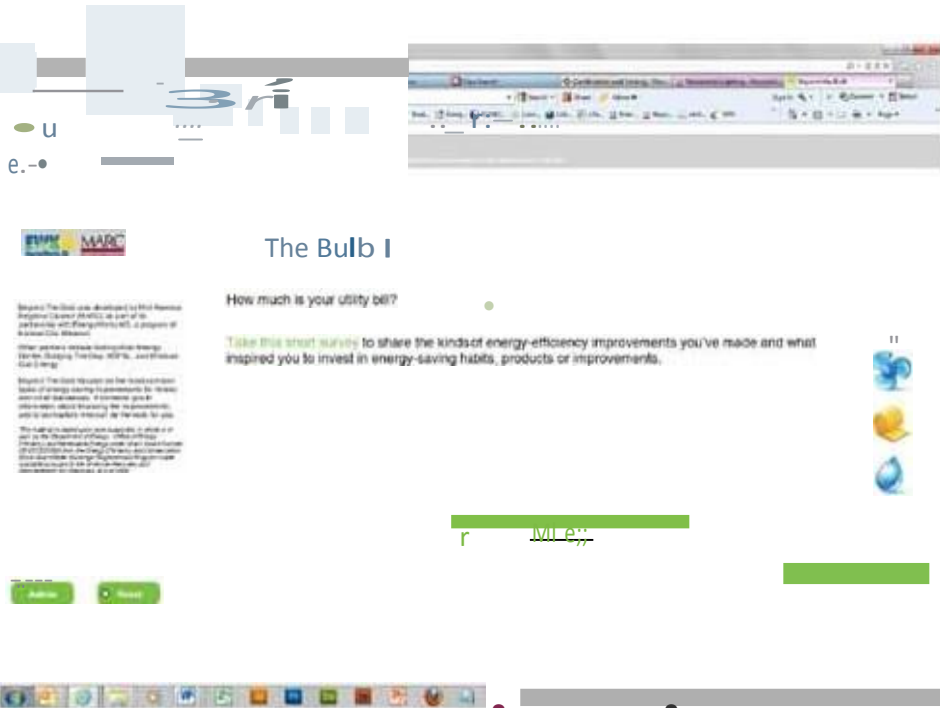


.....u,l4:>A:IG'fU. —It,AIM.l#'  
— — e#!f:::1 EIJ



Always contact your bank for the latest details of the  
amount in the money (if it varies and how much)  
amount in the money (if it varies and how much)

E







**MARC EnergyWorks KC Public Education: Mobile Meeting Outreach Events**



**Sept. 14, 2012 - Westlake Ace Hardware  
Excelsior Springs, Missouri**



**Sept. 14, 2012 - Westlake Ace Hardware  
Independence, Missouri**



**Sept. 22, 2012 - Westlake Ace Hardware  
Pleasant Hill, Missouri**



**Sept. 22, 2012 - Westlake Ace Hardware  
Belton, Missouri**



**Oct. 5, 2012 - Badseed Market  
Kansas City, Missouri**



**Oct. 6, 2012 - Gladfest  
Gladstone, Missouri**





**Nov. 13, 2012 - Buck O'Neill Day, Gem Theater  
Kansas City, Missouri**



**Dec. 1, 2012 - Westlake Ace Hardware  
Olathe, Kansas**



**Feb. 1, 2013 - Badseed Market  
Kansas City, Mo.**



**Mar. 2, 2013 - Johnson County Remodeling Show  
Overland Park, Kan.**



**Mar. 10, 2013 - Kansas City Auto Show  
Kansas City, Mo.**



**Feb. 8, 2013 - Kansas City Home  
Remodeling Show  
Kansas City, Mo.**

**MARC EnergyWorks KC Public Education Round 1 outreach giveaways: programmable thermostat or compact fluorescent light bulbs**



30 programmable thermostats



900 CFL bulbs given away in 225 four-packs

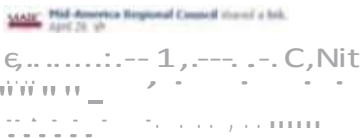
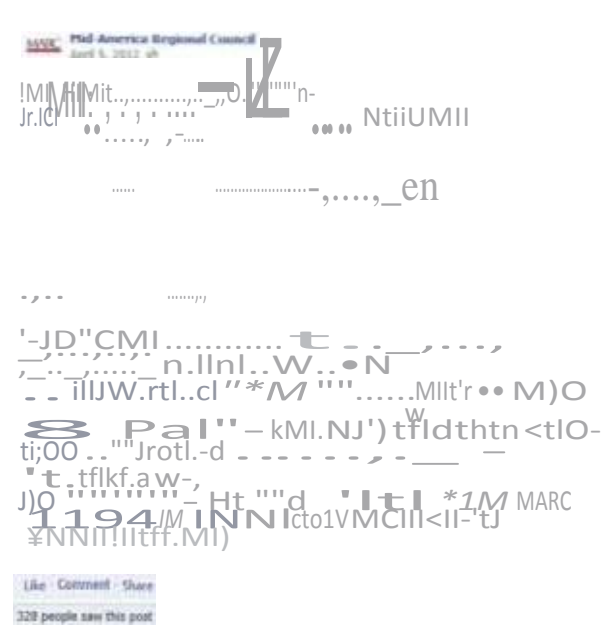
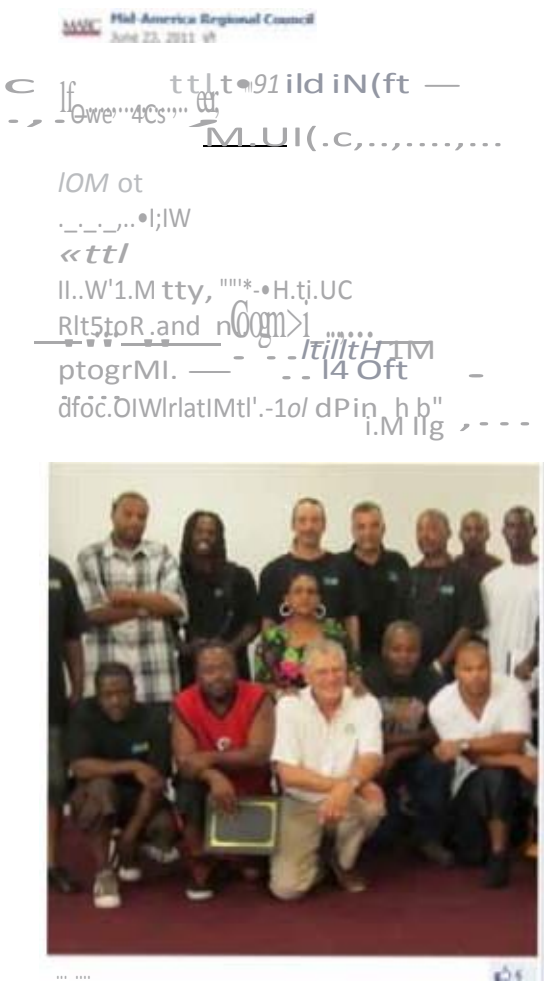
**MARC EnergyWorks KC Public Education Round 2 and 3 outreach giveaways: weatherstripping kits and water conservation kits**



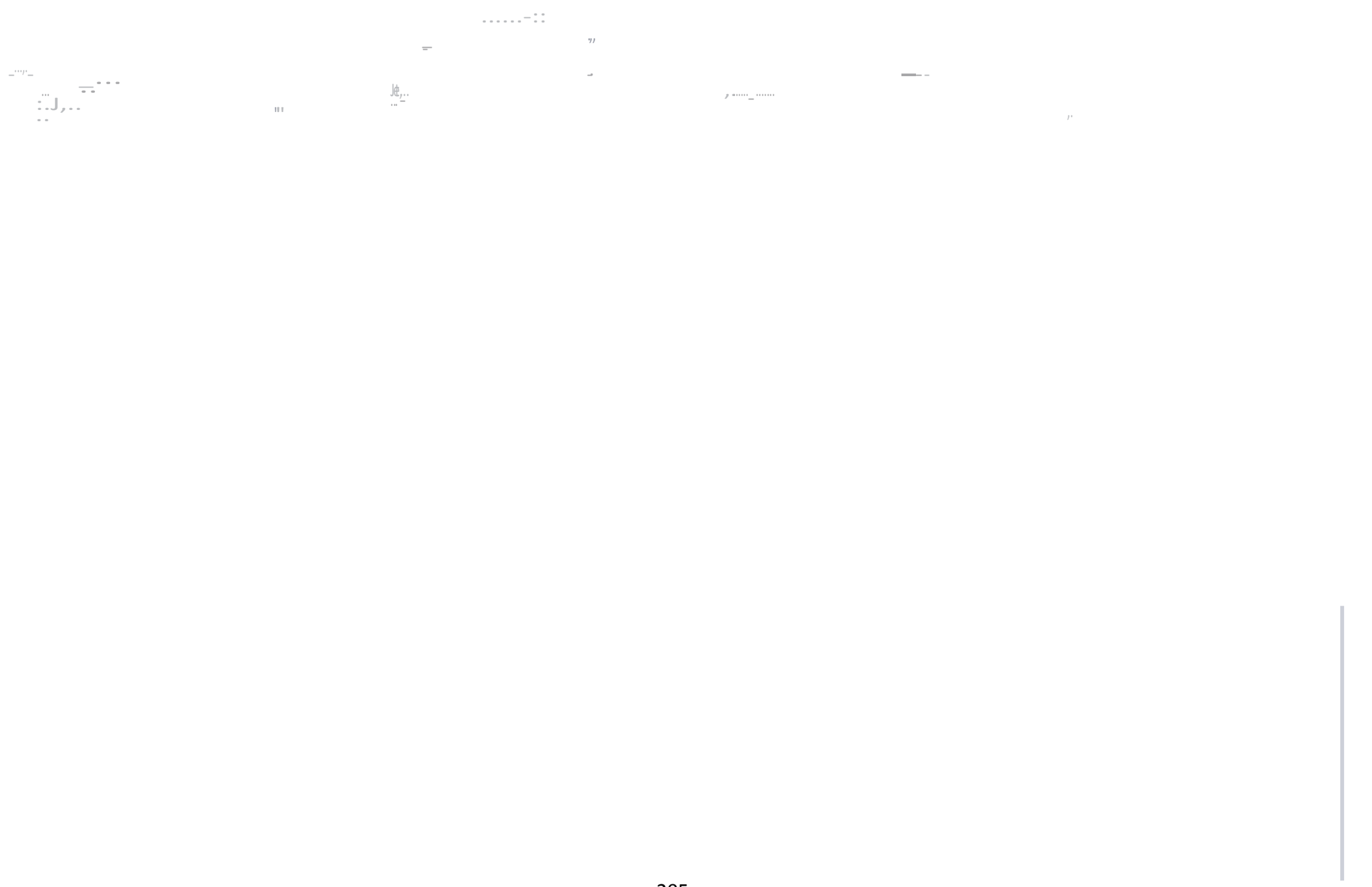
We will give away 225 weather stripping kits in November and December



We will give away 225 water efficiency kits in January and February 2013



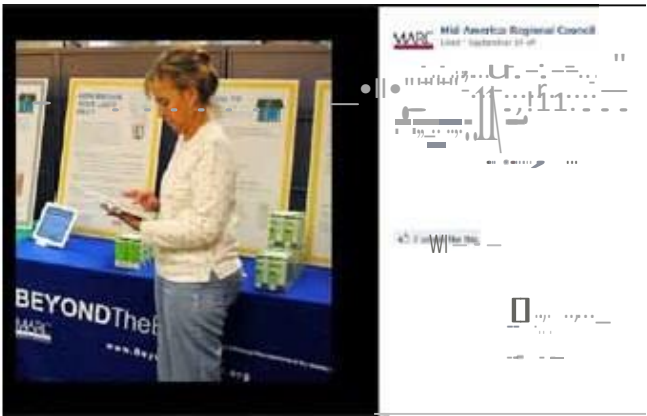












Mid-America Regional Council  
October 5 via Sendible · 5h

Catdl up on „our tMr!JY UWOIQS  
ru!!not!IW! MW tswe ot tM  
&let9fNOT'b kC £'''''''''''''' b lwr•:

October 2012  
evok-365.aci.mdeventmedia.com

Mid NIWI'fil'a A.n\$11tli'Uil I;outiiU  
E, g WOJ'bl(tM!ps tiQMtrtdU<o t'\*gy waftt, IWN"A  
ufmkwt "!!d »w ft!!Onl) on «W117F blk. t • t«l:!!l  
.hs.s!nm l!OillMf!4watM Jtu, *liNt*





M

MARCKCMetto MARCKCM ootro  
NEWS RELEASE - Ofld  
t I BulblancheS n<'W !'energy  
caluatoL ow.t)'/'Qikv"cl How muchcould  
you saw?

M

MARCKCMetro MAR.RC<C"J.'•bc1  
Do you think you pay too much on your t-  
rwrgr bitS? Ent('r to  
'oWla 110mc CrXrgy mak('orlow.t,.tpnrl

M

MARCKCMetro MARCKCMelrc>  
Mar  
Headeo to t'le @keau1osi\O\ v tills  
weekend?VIS:It tne  
@CMrpg\VOO<skC Ele)•ond The Gulb'S  
606clm CleanCA\ e for a  
FRC.C water conservauon kit!

M

MARCKCMetro MARCKCI!!etro  
n  
saving wa:er saves energy & money!Take CWKC's  
suNey &  
get a rree watersaving kill at Dadseed Mkl fr14-7 or  
Remodellllg  
snowrr11sat 1oa.9p  
Dntlna

M

MARCKCM.etro W.Jlr. >:C.M 1111  
n  
NEWSRELEASE. lo; money leaking down your  
drain?  
a.v lylgled7  
C.,.,.

M

MARCKCMIU'O MAKCKCMeiJo HH>CI  
1f  
emr...! Time tovMter.proor your oome.n.dout  
now at  
aPU's FH Y.'Ori(W)p on Oct 30, 4 7 pm Sign  
up f1, 'Ocl 24  
r,•JPolif\911  
b!!:  
€lpil111

M

MARCKCMetro MAR<:K!'M1•ho  
KCMO ll nls.Financing and inc:  
ntivcs au:available fo1  
  
Cfk.'1gy irnpi(W(>nt('nlsb  
('')Ond1h('bt.flb.Ofgft(>Sid('f1tiaV C...  
Fq ; nd

M

MARCKCMetro MARCKCMetro  
M While negy etidncy• Improvements have  
youmade, and  
- to  
whatinspire<- make them? Tellus. tOday at  
you  
•onattleOO bsutvey.org!  
(Xpand

M

MARCKC.Metro fAA.RCKCMe1ro  
Catc.h up on your energy S..1Vlf9S reading!  
rne new tSSue ot ttle Ene.t{n' Wort<s KC  
tJere" MiyiSq06HF  
  
MARCKCMetro  
MAR<:KCMetro  
Attn lWealestate agents!Take his  
trai!W'lg to oeoome a  
@NERins11Me  
certified ResJenttalenergy  
Retrofr1oroker(ow.l) fgt3XZ  
Olatn

M

MARCKCM•tro MAH<:tCC::tdMro  
M REENERCIZE •Free hofl1("imptOtreUICftw  
-  
otkshOpUliS Sat.,  
Antil7 on Ail SCalng- O.:taits on tll<JC .Ofg  
noml(:P Jgtl  
"-\_'

M

MARCKCM w. Kr.M. •,... t II  
etro R II  
City,  
I  
nawfintmsdy  
billy/pfkSKY  
Kansas t.lu, am)Qun  
hclp to cc-  
H"Sidcniit'nt.'lll01,  
SSovt. Fyf, 1L')  
k.Skt.: V;Ui  
FIJhl'l'tf

M

MARCK<:Mttto MNtI.. 'kCMtHIO o1111111  
ConoralS to ourlnendS a1ltheMetropoltr.an fnergy  
cen:er fOf  
gettNing agta n to help traIn  
Enwornents.WM rS  
  
hnp /ibll InMIHtD  
L•NNI  
  
'•  
Oct  
1J

M

IWilplt ComJD11>41ll  
700Kllld  
  
MARCKCMttro MAHCKC,.lrt>  
Is your hcyme "sUCKing power""! Fenc1 out wrtha KillA wan  
meter rrom JohnsonCo or e Pui)IIClibrary  
joco1ll:lr.rly orgrpowerw :k\$  
(Xpand

F•p;•od

**M**

MARCKCMetro MARCKCI.'etro  
1eam hOw to m.1keyour hOme more  
energy ettiCient fh'OU!jh  
tflese!1ne1VICieosil  
energyen Uency ow  
lylg4JH6

FxfJ;: tld

**M**

MARCKCMtU'O MAKCKCM8Cro 18  
oone more to save energy tnan swtIch 10 ens? rnen  
kudos!  
Y04/Ve gone OCYONO TIIC GULG! Tellus at  
be)-on<11tlebUib08vey.

40dt7

MARCKCMetro MARf'I((. tb f\p;np 1:"  
Se-)ono twlb askS""HOW much ISyour U11Uty bllrr Save  
Enl fl})' SoM: MonLy SiallNow \bi lhl'wcbSr.cl bUyITsyS.SV

MARCKCM!!tro t.\AAC

ONn 1

Ct.!

M lcam about f('bi:JIL"S and financial111CL-ntllt."S lo fo\ 't.'iiUk'IILI!  
- yume tomorrowthe wesICie energy rat Dltl)'IKX3)(1)X  
at

It1ARCKC Metro MAACKC\l tm

M

Mr; uu's ShO't't'-Mf.' Cwtn Sak.>s Tax

-

Hold<fy\_ Apt 19-25

Sta1e/10Ca.l  
sales tax

St exemption 16K010,

Clay Aatte

co

to

:

# green impact zone<sup>®</sup> of MISSOURI

Lessons Learned from  
Outreach  
and Engagement  
Practices from  
the Green Impact  
Zone Initiative



*How relationship building  
based on culturally  
relevant outreach and  
engagement facilitates  
transformation*

May 2013



## Introduction

This report takes a comprehensive look at the Green Impact Zone's strong outreach and engagement program across its eight major strategies.

The neighborhood leaders who drafted the vision, mission and strategies of the Green Impact Zone realized from the start that you can't enter an impoverished and disinvested area with a single strategy or goal. A home cannot be weatherized effectively if it has a hole in the roof or a crumbling foundation. The outreach and engagement strategies the Green Impact Zone staff use foster relationship building to help transform the area and require a more complete understanding of the area to gain awareness, trust and support from the residents.



This report emphasizes the need for a strong neighborhood outreach program that uses a wide array of tactics to inform, educate and move residents and local businesses to action. Examples of methods used to connect with residents and businesses include “boots on the ground,” and helping residents and businesses learn about and make effective use of available resources. Moreover, this report includes examples of the zone’s strategic focus on eight key areas, including energy efficiency, that comprise the zone’s holistic approach to outreach and engagement.

## Lessons Learned

The key findings from the Green Impact Zone’s innovative use of outreach and engagement programming are as follows:

### **Dedicated human resources move community initiatives forward**

A full-time staff with a wide experience base is essential for a place-based initiative to have the depth and acceptance in the community required for success. While residents helped craft the vision for the zone and are building their capacity to take on leadership roles, they can’t do it all by themselves as volunteers. A full-time staff armed with the experience, education and passion to transform communities is integral in tracking, managing and moving neighborhood initiatives forward. Staff has the ability to manage cross-sector partnerships, mitigate community challenges and provide technical assistance to community partners.

### **Support from a larger, recognized institution grounds a community initiative**

The Green Impact Zone’s placement within the Mid-America Regional Council provided the proper transparent, reputable, apolitical support and structure needed to springboard the initiative. MARC also provides administrative support such as payroll, grant administration and human resources. MARC, as the zone’s parent organization, also provides connections to a cadre of partners who have been invaluable in constructing a program focused on community transformation.

### **Cultural relevance creates trust**

It is important for outreach and engagement strategies to be culturally relevant. Neglected neighborhoods don’t get that way overnight and issues aren’t fixed overnight. The Green Impact Zone tapped local knowledge to better understand the unique personalities of each neighborhood. Staff quickly realized they would need to work with each community differently. A cookie-cutter approach would be the wrong strategy. Without a clear understanding of the area’s history, gaps can widen into gulfs, even for those with the best intentions.

Zone staff believes fundamentally in the intelligence, wisdom and insights of zone residents. While community leaders and their advocates are eager to implement “green” ideas of energy efficiency and environmental solutions, neighborhood leaders have encouraged zone staff to begin with improvements to residents’ overall quality of life and then gradually introduce “green” ideas, which are new to many zone residents.

Understanding a community’s history is a common-sense approach when attempting grassroots-level community reform. Therefore, outreach and engagement strategies must be sensitive to community

dynamics that are multi-layered, historical, complex and interactive. Cultural competency strengthens outreach and engagement, enabling an organization to focus on conveying the right messages with the appropriate attitude, knowledge, awareness and skill.

**Understanding the differences between placed-based outreach and engagement programs improves communication in underserved communities**

The Green Impact Zone's outreach is community focused and supported by neighborhood leadership. The zone invested in resources such as a Robo-call and a texting/email system to inform residents of programs. It also used "edutainment" activities to bolster support for issues.

In addition to these marketing methods, the zone also uses two-way communication to inform, educate, build trust and develop consensus through door-to-door engagement where members of the door-to-door team actually meet and interact with residents to explain programs and assist with applications. This approach helps build trust among residents, and also mirrors and replicates, on one or more levels, the approach implemented by many community development corporations in Kansas City area since 1970.

**Have fun with it!**

Being committed to helping others improve their lives can be stressful. Finding ways to de-stress as a staff is essential as staff faces community challenges every day. Celebrating and sharing even the smallest victories is important.

## Green Impact Zone Overview

In 2009, Kansas City, Mo., as well as the rest of the nation, was contending with scores of issues that helped set the stage for an innovative initiative called The Green Impact Zone of Missouri. Foreclosures were at an all-time high. Employment was at an all-time low. The auto industry was on the brink of collapse. Risky investments in sub-prime lending led to the demise of iconic financial powerhouses such as Lehman Brothers. In the midst of two wars and national industry bailouts, the country was wrestling with the fact that our resources were finite. In response, the U.S. government began implementing policies to shift the nation's thinking to becoming better stewards of the environment by allocating resources to programs and initiatives focused on environmental and energy conservation through the American Recovery and Reinvestment Act.

The urban core of Kansas City, Mo., like many large cities across the nation, has areas that have seen decades of disinvestment. As a result, urban neighborhoods endure high rates of poverty, unemployment and crime, as well as high concentrations of vacant and abandoned properties. In Kansas City, neighborhoods east of Troost Avenue (historically, a cultural and economic dividing line) were hit particularly hard by the decline. A variety of interventions had been used to address these social and economic issues without success. As the global economy tanked in 2009, there was growing pressure to find short-term and long-term solutions to concurrently build individual and community capacity.

In September 2009, Congressman Emanuel Cleaver II announced the creation of the Green Impact Zone with support from the city of Kansas City. The zone was framed as a national model for targeted investments, seeking to demonstrate how 150 square blocks of the urban core might be transformed through sustainable reinvestment. The zone is bounded by Troost on the west, 39th Street on the north, Prospect/Swope Parkway on the east and 51st Street on the south.

Table 1 below reflects the significant challenges, and even greater potential of the zone.

Challenges	Potential
<ul style="list-style-type: none"> <li>X 37.3 percent poverty rate.</li> <li>X 50 percent unemployment in some neighborhoods.</li> <li>X 55 percent of population has high school education or less.</li> <li>X 41 percent of the housing stock built before 1940.</li> <li>X \$22,712 median income.</li> <li>X 53 percent renters.</li> <li>X One grocery store; limited access to fresh fruits and vegetables.</li> <li>X More than 1,000 vacant lots and many abandoned homes and commercial buildings.</li> </ul>	<ul style="list-style-type: none"> <li>X Five strong neighborhood associations.</li> <li>X Five Community Development Corporations (CDCs).</li> <li>X In the area between the Zone and the Country Club Plaza homes range in value between \$500,000 –\$1 million dollars.</li> <li>X Active civic leaders and organizations.</li> </ul>

**Table 1**

Congressman Cleaver saw this as an opportunity to concentrate and coordinate financial and community resources in this area. He called on the city of Kansas City, Mo., to fund the core operation of a staff whose primary focus would be to work side by side with the neighborhoods in a manner that contributes to community transformation, while also building the capacity of neighborhoods. Since 2009, the city council has provided \$3.8 million to support the core operation, including neighborhood capacity building grants.

The Congressman then turned to the Mid-America Regional Council (MARC), the region's metropolitan planning organization and a trusted, neutral public agent, to administer the city funding and anticipated grants, and to provide oversight for the initiative.



MARC conducted a series of focus groups with the five neighborhoods that make up the Green Impact Zone. The focus groups allowed neighborhood residents to determine the overall goal of the Green Impact Zone initiative, and the strategies that would lead to achievement of the goal. These strategies would lay the foundation for the Green Impact Zone work plan. Neighborhood residents determined in the focus groups that strategies in eight areas were critical to transformation: housing, employment and training, energy efficiency and water conservation, weatherization, urban agriculture, youth, public safety and community services, and infrastructure. The focus groups felt that these strategies would accomplish the zone's mission and vision: To develop a community that is socially, economically and environmentally better tomorrow than it is today; a place where people want to live, work and play.

Strong neighborhood outreach and engagement programs underlie all of the work of the Green Impact Zone. Outreach efforts sought to not only engage every resident and business in the activities of the zone, but help every resident understand and access the wide range of available resources.

In the 3.5 years since its inception, the Green Impact Zone has been the catalyst for the awarding of more than \$178 million in federal grants and private funds, some of which reach outside the zone boundaries to the broader Kansas City region. Grant funds are supporting infrastructure improvements, an energy-efficient Smart Grid program, energy-efficiency improvements, employment and training, housing improvements and more.


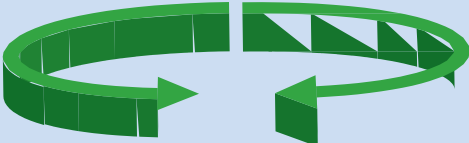


## Communication Strategies

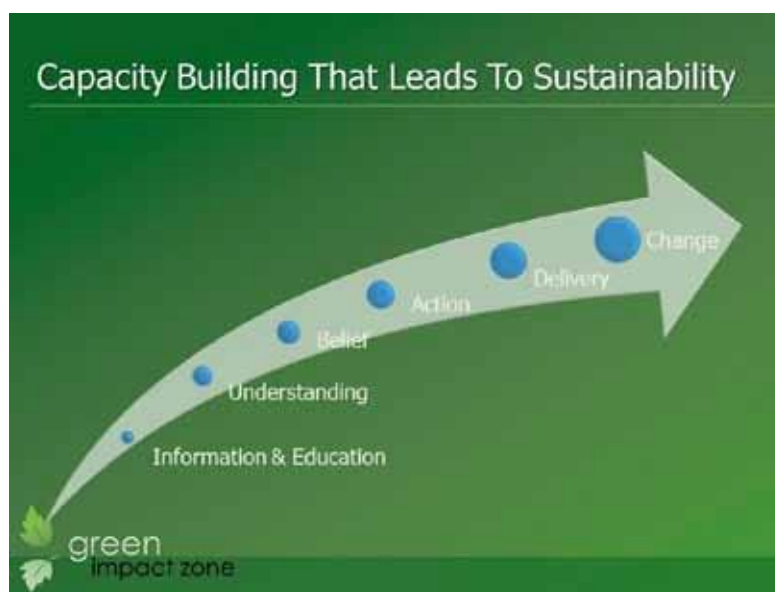
The Green Impact Zone defines and implements outreach and engagement as two separate elements.

- X Outreach is a mechanism for delivering value-added material to neighborhood residents. Outreach paves the way for engagement.
- X Engagement is the means to collaboratively address community concerns using focused, ongoing, two-way conversations to develop understanding. Engagement encourages open dialogue and an exchange of information.

Appreciating the difference between the two approaches helps determine the extent to which an organization can expend its resources and the cultural relevance of its messaging. Outreach and engagement are universal values built into the Green Impact Zone's programs, culture, strategies and practices. Table 2 illustrates the distinct differences between the two concepts.

Outreach: One-way communication	Engagement: Two-way dialogue
 <ul style="list-style-type: none"> <li>X Delivers one-way communication.</li> <li>X Increases awareness and informs residents.</li> <li>X Involves community residents and stakeholders.</li> <li>X Meets people where they are.</li> <li>X Provides the foundation for engagement.</li> </ul>	 <ul style="list-style-type: none"> <li>X Includes ongoing relationship building.</li> <li>X Increases awareness and educates residents.</li> <li>X Works with the community to mutually identify solutions.</li> <li>X Assesses success of strategies.</li> <li>X Encourages feedback and open communication with residents.</li> <li>X Involves listening to people and building trust.</li> </ul>
<p><b>Table 2</b></p>	

Outreach is necessary to help organizations and businesses promote their values, accomplish their mission and develop increased resources and responses to address a range of compelling community concerns. The Green Impact Zone's capacity-building strategy is rooted in outreach and engagement that begins with the process of information sharing and education of residents and community leaders. This diagram at right, created by the Green Impact Zone, displays a six-step change process that results in





capacity building leading to sustainability. Though outreach and engagement strengthens each stage, information, education and understanding are necessary to change or modify a person's behavior.

"Edutainment," (education + entertainment) a marketing technique used throughout business circles, has been an effective outreach tool to inform and engage Green Impact Zone residents. People at all income levels like to be entertained. Consequently, the zone uses "edutainment" events in combination with WIIFM (what's in it for me) strategies such as giveaways to attract people to an event and increase their receptivity to the educational message.

The Green Impact Zone's outreach and engagement is not limited to residents, but extends to policy makers, government officials, civic leaders and philanthropists to help them understand the range of challenges lower-income people face in their daily lives. One of the tools the zone uses to enlighten these groups about people in poverty is the Missouri Association for Community Action's Poverty Simulation. The simulation is a role-playing kit that enables participants to view poverty from different angles to broaden social, cultural and economic competency. It is imperative for community-based organizations like the Green Impact Zone to find meaningful ways, like the poverty simulation, to bridge the gap between policy ideas and neighborhood challenges.

#### Green Impact Zone grassroots outreach and engagement methods

The Green Impact Zone uses the following outreach and engagement methods in whole or in part. They can be used by other community-based organizations provided they are tailored to a particular organization's style or a community's needs. They are not inclusive of every outreach and engagement method employed by the zone. However, they are the most replicable.

#### **Educational and informational outreach** (outreach) Educational and

informational outreach is an entry-level interaction where informational material is communicated to neighborhood residents or the public at large. Some examples of these types of meetings are EnergyWorks KC (EWKC) program updates for neighborhood associations, weatherization meetings for local neighborhood associations, landlord meetings to discuss weatherization, radio promotion and event tabling. As an outreach tool, meetings allow residents to ask questions, make comments and share concerns. Such meetings may enable two-way communication depending on time, subject matter and other factors. Engagement typically occurs after meetings when residents ask in-depth questions.



This strategy also includes typical communication methods to disseminate information, such as Robo-calls (an automated phone call that uses a computerized auto-dialer and a computer-delivered, pre-recorded message), newsletters, reports, email blasts, radio promotions and event tabling.

**“Edutainment” events** (outreach and engagement)

“Edutainment” outreach and engagement events are large events with 100 or more attendees that combine education and entertainment in a manner designed to promote social change. For example, the Brush Creek Community Partners (BCCP), in partnership with the Green Impact Zone, hosted a “Meet Me at the Bridge” event that blended Kansas City history with a reference to the historic racial divide the community is trying to bridge. The purpose of this event was outreach that promoted each of the eight strategies and provided opportunities for partners to cross market. Information was provided in an entertaining fashion with the goal of building interest and creating opportunities for future engagement.



The “Energize Your Home, Impact the Zone” community event is another example of an “edutainment” event where several participating organizations provided information about weatherization, home ownership, energy efficiency, jobs and job training, youth programs, conservation, health and nutrition, public safety and much more. The event included 54 information booths,

including neighborhood associations, nonprofit agencies, city departments, social service agencies, youth programs and environmental awareness groups. Entertainment was

provided by local performers and Tom Joyner, host of the nationally syndicated Tom Joyner Morning Show. The event drew more than 500 participants, including 76 volunteers.

**Door-to-door teams** (outreach and engagement)

Teams were periodically formed to include the Green Impact Zone’s community ombudsmen along with a hired street team comprised of five to six people with strong communication and people skills. These teams distributed information on no more than three of the Zone’s eight strategies by leaving information at the door or talking with the resident about potential actions on the strategies being promoted. For example, door-to-door outreach focused on the weatherization program and generated 3,098 Low-Income Weatherization Assistance Program (LIWAP) applications.

Door-to-door outreach can be as simple as leaving fliers, applications or information at the doors in a particular area. It can become an engagement strategy in areas where the team actually meets and interacts with the residents to explain the programs and assist with applications.

**Social media** (outreach and engagement)

Social media tools can be used for outreach and engagement. Tools such as Facebook, Twitter and YouTube can be used to update followers with event information, share tips, pose questions, share program benefits such as EWKC’s



no-cost energy assessments for zone residents and, in the case of Twitter, provide real-time updates on the progress of events or happenings at the zone offices, in other zone venues and elsewhere.

### **Organizational and individual relationship management** (engagement) Leveraging trusted, existing

relationships among individuals and/or organizations to facilitate action is a proven and successful strategy for the Green Impact Zone's outreach. Field ombudsmen are Green Impact Zone staff assigned to neighborhoods, organizations and focus areas for the sole purpose of developing relationships that will result in capacity building for the zone, and transformation for the individual and/or community. Block captains, block leaders or other community collaborations find synergies across programs, address needs or cross-market events, projects and programs.



Human capital is the greatest resource for a community or organization. The ability to work with people, facilitate meetings, build consensus, negotiate group dynamics and hold one-on-one discussions are all critical to successfully implementing this strategy.

### **Learning communities and workgroup management** (engagement)

Learning communities in the Green Impact Zone evolved into the Zone Institute of Preparation and Prosperity (ZIPP) as a solution for residents who are seeking to improve their lives through skills development, job acquisition and retention, with an emphasis on green jobs and environmental literacy.

ZIPP uses comprehensive Social, Economic and Environmental (S.E.E.) training modules that include self-management, career readiness, civic engagement, community involvement and environmental literacy. The S.E.E. training principles reflect the vision of the Green Impact Zone, which articulates the goal for distressed urban communities to become socially, environmentally and economically stronger. Each training module encapsulates one or more of the Green Impact Zone's S.E.E. training principles, such as:

1. Increased work readiness (self-management, workplace communication, etc.) for unemployed and underemployed residents of the Green Impact Zone and other area neighborhoods.
2. Development of local talent who have strong workplace readiness skills, baseline knowledge of environmental concepts and who can immediately contribute to the company's bottom line.

### **Partner workgroups** (engagement)

Partner workgroups are meetings attended by specific Green Impact Zone staff and other community, civic and for-profit leaders to address specific subject areas. These workgroups cover a variety of topics including social equity, workforce development, health and wellness, housing or other pertinent issues impacting communities. These workgroups explore ways to improve or change procedures, processes or ways of thinking to help communities realize positive and sustainable change.

## Outreach goal

Outreach and engagement activities are opportunities to reach specific, measureable goals and results. Goals can be defined as the number of people who attend an event, sign-up for a program or volunteer their time in a given period. An outreach goal can quantify how people value what you offer.

An organization develops a wide range of relationships with participants, funders, volunteers, referral sources, government entities, small businesses and neighborhood associations. The list is endless. Outreach and engagement are important efforts that community-based organizations use to promote their values, accomplish their mission, and develop increased resources.

Goals are as unique as an organization. A goal can be determined by the capacity to do the work or ability to leverage resources to support an effort. An organization's goals should strike a balance between an ideal of what could be accomplished and what is possible. It is key to remember that goals are important, but not more important than an organization's mission.

## Outreach and engagement materials

Promotional materials can be as modest as a flier or a notice in a church bulletin, or as flashy as a billboard, a flash-mob or a television commercial. Regardless of an organization's size, the goal is to have people respond. Therefore, fliers, email blasts or Robo-calls should be oriented to a specific target audience and cause them to equate the organization with adding value to their lives. The development of impactful promotional materials can, literally and figuratively, open residents' doors. The materials an organization distributes reinforces who they are to the community. In developing outreach material, techniques can be mixed and matched to find the ones that are the most useful. This is a fertile stage for generating new ideas without sacrificing message.

Living in an era where people and organizations have access — at least online access — to an organization every minute of every day, it is tempting to use limited resources to increase your social media footprint. While all community-based organizations should have a Facebook and Twitter presence, it's important to remember that there is nothing as meaningful as personal contact. Even in our instantaneous society, people still serve people and do the work that makes the difference.



Could you use some **free** hyper-efficient new appliances?

Homeowners in the Green Impact Zone: You may qualify to win a free refrigerator, washer and dryer, or heat pump water heater

KCP&L will give away a limited number of appliances as part of a research project to measure how energy-efficient these appliances really are. Find out if you are eligible to win free appliances. Contact your Green Impact Zone community ombudsman today:

**IVANHOE**  
Call Arletha Manlove, 816-936-8808

**BLUE HILLS**  
Call Cokethea Hill, 816-936-8807

**49/63, TROOSTWOOD OR TOWN FORK CREEK**  
Call Pauline Mbogo, 816-936-8806

**MANHEIM PARK**  
Call Jermaine Reed, 816-936-8805

**KCP&L**  
energizing life

Green Impact Zone of Missouri  
4600 Paseo, Kansas City, MO 64110  
Phone 816-936-8803  
www.greenimpactzone.org

## Case Studies

The following case studies illustrate the Green Impact Zone's best practices for outreach and engagement strategies. These approaches can be used by themselves or in combination. Each case study depicts a different scenario and one of the zone's eight strategic focus areas.

### **CASE STUDY 1: Weatherization — The “Little Thunder” Story**

The Green Impact Zone was responsible for facilitating outreach to residents regarding the benefits of the Low-Income Weatherization Assistance Program (LIWAP). Outreach included educating residents about the program and its benefits, distributing applications and assisting homeowners in working through miscommunication with weatherization contractors. In some instances, outreach helped redirect homeowners to other community resources such as EnergyWorks KC or Neighborhood Housing Services (NHS) if they did not meet income or eligibility guidelines.

Four months after the grant was announced, the first weatherization client was approved, work was scheduled to begin, and a news crew was dispatched to film the commencement of the work. The homeowner and weatherization contractor miscommunicated regarding the scope of work and the preparation the homeowner needed to complete before the contractor would begin. In frustration, the homeowner put a halt to the work and refused to move forward with the weatherization process.

The zone staff was asked to get the weatherization work back on track by assisting the weatherization contractor and homeowner in resolving their miscommunication within 24 hours. The ombudsman assigned to the neighborhood where the homeowner lived had a year-long history of interacting with the neighborhood association's block captains, volunteers and paid staff. The ombudsman knew the personalities and organizational roles of those involved, and therefore knew who to call on to get things done. The ombudsman was able to use his relationship with the homeowner and association staff person to get the situation resolved quickly. In less than 10 minutes after receiving the request for assistance, the staff person called to the homeowner and explained what needed to happen and what was at risk if she chose not to move forward in the weatherization process. The homeowner turned to the Green Impact Zone staff and asked that the zone ombudsman assigned to her neighborhood be a part of the face-to-face meeting with the contractor.

The homeowner, zone ombudsman and contractor met at the home and reviewed the paperwork, resolved the miscommunication and in less than 24 hours the work was back on track. The weatherization process yielded her a new furnace that she calls “Little Thunder.” The homeowner was so pleased with her warm home that when she recounts her experience (which can be seen in a testimonial at [www.youtube.com/watch?v=H15jNAnN0mc&feature=relmfu](https://www.youtube.com/watch?v=H15jNAnN0mc&feature=relmfu)), she does not even reference the frustration she experienced. The Green Impact Zone's use of organizational and individual relationship management led to the desired results in this case study.

#### ***Energy impacts:***

- X The homeowner is saving energy, receiving lower heating bills and enjoying a more comfortable home.

**CASE STUDY 2: Housing**

Housing development within the Green Impact Zone focuses on green design and sustainability practices that will create, as stated in its mission, “safe, attractive and sustainable neighborhoods.” These practices should be embedded in every aspect of housing initiatives from the planning and predevelopment phases to construction.

Enacting an overarching sustainability plan throughout the Green Impact Zone is critical in guaranteeing that these efforts are followed and the desired outcomes are achieved and sustained. With this outcome in mind, the team developed a matrix comparing two of the nation’s prestigious building standards for green development — LEED for Neighborhood Development and Enterprise Green Communities standards — and presented the matrix to community leaders to determine which plan suited their community needs and best aligned with the city’s regulatory practices.

It was established that the Enterprise Green Communities program was the best fit for outlining a design and regulatory framework for future development within the zone’s housing initiative areas. The standards focus on affordable, green design alternatives that include:

- X Construction materials and management.
- X Land-use planning and smart site location that uses passive solar heating and cooling.
- X Surface stormwater management.
- X Energy-efficiency guidelines and recommendations.

***Outreach strategies implemented:***

Educational and informational outreach approach

- X Robo-calls — via recorded telephone messages, zone residents were:
  - Invited to attend meetings and provide input on the proposed green standards.
  - Informed that a door-to-door team would be conducting an information drop.
- X Neighborhood Meeting Updates — neighborhood leaders and zone ombudsman communicated outcomes from the green standards meetings and next steps in the process.
- X Information drop door-to-door — information was hand delivered to neighborhoods.

***Engagement strategies implemented:***

Organization and/or Individual Relationship Management Approach

- X Housing meetings were facilitated to allow residents an opportunity to discuss and evaluate the construction materials/management, water conservation and energy-efficiency options being considered for neighborhood housing development projects

***Energy Impacts:***

- X Unified housing development strategies focused on energy conservation measures including insulation, heating and cooling efficiency, efficient appliances and smart land-use applications.



**CASE STUDY 3: Urban Agriculture**

In order to engage residents around urban agriculture, staff created an informational meeting on the topic of container gardening. Through research and previous partnerships, zone staff located a local resource, Kansas City Community Gardens. These engagements were especially important for those who were new to the concept of growing food, weren't ready for a large-scale garden, didn't have space for a garden or were uninformed about the benefits of urban agriculture. As is often the case with outreach, multiple tools were used. While the informational session was the first tool used to engage residents around the idea of community gardening, the following outreach and engagement strategies were implemented:

***Outreach strategies implemented:*****Educational and Informational Outreach Approach**

- X Robo-calls — via recorded telephone messages, zone residents were:
  - Invited to participate in urban gardening activities in area community gardens.
- X Email blasts:
  - Invited community partners to participate and spread the word about the container gardening class.
- X Newsletter
- X Neighborhood meeting updates.
  - Informed residents about the upcoming container gardening class, handed out fliers and provided addresses and contacts to area community gardens.
- X Information dropped door-to-door.

***Engagement strategies implemented:*****Organization and or Individual Relationship Management Approach**

- X Leveraging partnerships to facilitate training.
- X Field ombudsmen made personal requests to urban gardeners asking for assistance to identify residents interested in gardening and urban farming.
- X Personal phone calls to confirm and remind attendees of training. Urban agriculture creates multiple benefits and positive community impacts.

***Energy impacts:***

- X Conservation of fossil fuels — The reduction in transportation-related pollution correlates with the reduction of fossil fuel usage.
- X Stormwater management — Many urban agriculture practitioners use water catchment systems. These include rain barrels and other methods of diverting rain water into storage. This reduces the amount of rain water entering the storm sewer system, but it also reduces the reliance on the municipal water supply during periods of light or no rain. This conserves water that would have been used to irrigate the gardens.

***Environmental impacts:***

- X Urban agriculture provides many benefits to communities where it is encouraged and supported. The primary benefit comes from the food that is produced, which is often organic, or at the least minimally treated with pesticides, thereby reducing the toxic load of the community's natural environment.
- X Reclamation of vacant lots and brownfields — Many neighborhoods are able to repurpose blighted and vacant lots in their communities using urban agriculture. This gives these lots new utility for the community and removes dangerous or unattractive space. Also, for lots that had been polluted by prior use (car-repair facilities, dry cleaners, etc.) organizations such as the EPA have funding available for brownfield remediation, a process that removes the toxins from the soil and makes the ground usable for urban agriculture. This process cleans away dangerous chemicals and helps repurpose the land.
- X Reduction in pollution — Since urban agriculture produces food close to where the end-consumer lives, there is a reduction in pollution related to transporting food as well as the transporting of consumer to grocery stores, which in Kansas City tends to be miles from many urban core communities.

***Other benefits of urban agriculture:***

- X Public safety — One of the most overlooked defenses communities have against crime is natural surveillance, a term referring to people who are outside for recreation, relaxation, exercise, etc., and as a result are observing their communities. Urban agriculture serves this purpose by placing people outside in a purposeful and positive way. Their presence will deter criminals who would prefer their activity not be seen by members of the community, especially those members who are actively involved in the transformation or improvement of their communities.
- X Food grown in urban communities also provides great health benefits, as it is produced locally, addresses issues associated with food deserts, and provides nutritious foods to often disadvantaged communities or those with limited access to fresh fruits and vegetables. Many diseases and physical ailments can be addressed simply by eating better, and urban agriculture increases the options people have to acquire fresh fruits and vegetables.

**CASE STUDY 4: Energy-Efficient Appliance Research**

In 2010, KCP&L placed new, hyper-efficient appliances — including refrigerators, washers and dryers — in a limited number of homes in the Green Impact Zone as part of a project with the Electric Power Research Institute (EPRI) to measure how manufacturers' claims compared to actual electricity usage.

Day-to-day operation of these appliances will help the EPRI measure how much energy the appliances can save the average homeowner. With help from the Green Impact Zone's community ombudsmen, homeowners were recruited to participate in the project, based on their active involvement in neighborhood and community events.



***Outreach strategies implemented:***

Educational and informational outreach approach

- X Robo-calls — via recorded telephone messages, zone residents were:
  - Invited to attend informational session to learn about the appliance give-away program and how to qualify for the program.
  - Informed that a door-to-door team would be conducting an information drop.
- X Neighborhood and community partner meeting updates.
- X Information drop door-to-door.

***Engagement strategies implemented:***

Organization and/or individual relationship management approach

- X Leveraging partnerships to facilitate training.
- X Training and employment of minority plumbers and electricians.
- X Zone ombudsmen managed each appliance installation to ensure residents understood the program requirements and served as a bridge between zone residents and KCP&L.

***Energy impacts:***

- X Energy conservation through the use of efficient home appliances.

***Neighborhood Capacity Building Impact:***

- X Selection of program participants was based on the level of involvement in their neighborhood association, thereby encouraging and rewarding their continued participation in the neighborhood association.

**CASE STUDY 5: SmartGrid Demonstration Project**

KCP&L deployed “smart grid” displays to more than 1000 residents in the Green Impact Zone and surrounding smart grid demonstration area starting in 2010. The displays interact with their new meter to allow consumers to see how much electricity they are using at any given time, allowing them to make better decisions about their energy use.

***Outreach strategies implemented:***

Educational and informational outreach approach

- X Neighborhood and community partner meeting updates.
- X Information drop door-to-door.

**Engagement strategies implemented:**

Organization and/or individual relationship management approach

- X Leveraging partnerships to facilitate outreach.

**Energy impacts:**

- X Of the 1,000+ SmartGrid displays placed in homes, nearly 700 of them are still in use. (Others displays have been lost, and some residents could not be reached for comment or have moved away.)
- X Of the 700 displays, 50 percent of them are being used by residents who say they value the information they receive from them.
- X Seventy of these residents also enrolled in KCPL's Time of Use rate pilot program, which offers customers a higher-than-standard rate during "peak" hours and a lower-than-standard rate during "off peak" times, thereby encouraging them to manage their costs by reducing their usage during peak hours. This program is only offered during the summer months, May 16 through Sept. 15. The results from those 70 homes:
  - 40 households saved energy and money for the entire summer.
  - The average savings for those customers was \$31.56, a 9.5 percent reduction from the traditional rate structure.
  - 13 customers reduced their bill by more than 20 percent.

**CASE STUDY 6: Deconstruction / EnergyWorks KC**

In 2010, Wells Fargo donated 23 foreclosed properties to the Ivanhoe Neighborhood Council on behalf of the Green Impact Zone, along with \$172,500 to help pay for rehabilitation or demolition, if that was the necessary outcome. Rather than just bulldoze the houses, the city of Kansas City's EnergyWorks KC staff proposed deconstructing them. Deconstruction involves carefully dismantling building components for reuse and recycling.

MARC and the Green Impact Zone worked with EnergyWorks KC, the Ivanhoe Neighborhood Council, Habitat Restore and The ReUse People to develop a deconstruction training-project plan.

After reviewing 100 applications and interviewing 25 candidates, 14 participants were selected for the program. After the group completed the two-day, OSHA-10 training at the start of the program, one of the trainees, Rane Newman, was offered a job and accepted. The remaining participants finished the training, which included hands-on deconstruction of the house at 4429 Garfield.

**Outreach strategies implemented:**

Educational and informational outreach approach

- X Robo-calls.
- X Newsletter.

- X Neighborhood meeting updates.
- X Information drop door-to-door.

***Engagement strategies implemented:***

Organization and or individual relationship management approach

- X Interviewed residents.
- X Training and employment of zone residents.
- X Worked in partnership with EnergyWorks KC partners coalition to train residents in deconstruction.

***Energy impacts:***

- X Building deconstruction allows building materials to be reused, thereby reducing the energy required to produce virgin materials.

***Employment and Training Impact:***

- X Residents who received deconstruction training now have an additional skill set that makes them more marketable to area contractors.

**Conclusion**

The Green Impact Zone was created to be a national model for place-based investments that replace old paradigms with innovative, strategic approaches leading to community transformation. It also demonstrates the importance of effective outreach and engagement and the role strategic private-public partnerships play in tackling entrenched community challenges. This paper summarizes strategies employed by Green Impact Zone staff to increase awareness, and inform and educate residents about challenges and opportunities converging in their community. Another goal of this paper is to reinforce the argument that place-based initiatives are effective approaches to build community capacity in ways that support quality lifestyles and foster equitable distributions of resources.

The first step in neighborhood transformation is acknowledging the wide range of social, economic and environmental issues in an urban community. Private and public investments in long-term community goals jump-start the transformation of a community in a way that is safe and attractive, paving the way to quality housing and a higher quality of life. Residents need information and tools to enhance their individual and the broader community's problem-solving capacity. Effective outreach and engagement has the ability to raise awareness and broaden understanding that can lead to community transformation. Building resilient communities goes beyond the scope of public policies and practices. In the end, developing community resiliency at the household or neighborhood level will demonstrate a community's ability to attract and maintain resources, creating stronger neighborhoods over time.

There is a spirit to outreach that says "positive change is possible." It inspires hope to continue to pursue opportunities to improve the lives of residents in the community.

## References

Bloom, Howard S., Learning More from Social Experiments: Evolving Analytic Approaches. Russell Sage Foundation, 2005.

Bozorg, Leila, Spatializing Social Equity Through Place-Based Policies: Lessons From the Green Impact Zone of Missouri, In Kansas City, Missouri, Massachusetts Institute of Technology Department of Urban Studies and Planning, retrieved August 11, 2012, <http://hdl.handle.net/1721.1/59715>.

Kelly, Keith, Racial Residential Segregation in the Kansas City Area Among Blacks and Hispanics: A Comparative Analysis, University of Missouri-Kansas City and Department of Economics August 2011, retrieved August 13, 2012, <https://mospace.umsystem.edu/xmlui/handle/10355/11263>.

Mid-America Regional Council, Year Two Green Impact Zone Annual Report, September 2011, Kansas City, Missouri, p. 16.

Morrow, Betty, CARRI Research Report 4 - Community Resilience: A Social Justice Perspective, September 2008, retrieved August 13, 2012, [www.resilientus.org/library/FINAL\\_MORROW\\_9-25-08\\_1223482348.pdf](http://www.resilientus.org/library/FINAL_MORROW_9-25-08_1223482348.pdf).

Orsburg, Peter, Developing Effective Place-Based Policies for the FY 2011 Budget, Office of Management and Budget, August 2009, retrieved August 9, 2012, [www.whitehouse.gov/sites/default/files/omb/assets/memoranda\\_fy2009/m09-28.pdf](http://www.whitehouse.gov/sites/default/files/omb/assets/memoranda_fy2009/m09-28.pdf).

Stern, Gary J., Marketing Workbook for Nonprofit Organizations Volume: Mobilize People for Marketing Success, St. Paul, Minnesota, August 1997, pp. 13-15.



*This program is made available, in whole or in part, from the US Department of Energy, Office of Energy Efficiency and Renewable Energy, under Grant Award #DE-EE0003564 from the Energy Efficiency and Conservation Block Grant BetterBuildings Neighborhood Program made available, pursuant to the American Recovery and Reinvestment Act of 2009, to the City of Kansas City, Missouri.*



DEVELOPING KANSAS CITY'S

GREEN JOBS PIPELINE

Green Workforce Initiatives Task Force  
8/1/2011

## Developing Kansas City's Green Jobs Pipeline

### Table of Contents

<b>Part 1: An Introduction</b>	<b>Page 2</b>
<b>Part 2: Executive Summary</b>	<b>Page 3</b>
Section 2.1: Pipeline Strategies	Page 4
Section 2.2: Strategic Priorities	Page 5
Section 2.3: Grant Award Criteria	Page 6
Section 2.4: Structure and Process	Page 7
<b>Part 3: The Pipeline Today in Kansas City and Elsewhere</b>	<b>Page 8</b>
Section 3.1: Kansas City's Green Jobs Pipeline: 2011	Page 8
Section 3.2: What's Working Elsewhere	Page 12
<b>Part 4: Plan Development</b>	<b>Page 19</b>
Section 4.1: Process	Page 19
Section 4.2: Task Force Meetings	Page 20
<b>Appendices</b>	<b>Page 28</b>
Task Force Membership	Page 29
Area Organizations	Page 30
Green Jobs Pipeline: Strengths and Weaknesses	Page 32
Proposed Green Workforce: Pipeline Strategies and Tactics	Page 36

## DEVELOPING KANSAS CITY'S

### GREEN JOBS PIPELINE

#### Part 1: An Introduction

In 2010, the Mid-America Regional Council (MARC) established a regional workforce group focusing on EnergyWorks KC. That program is made possible through a \$20 million grant received by the City of Kansas City, Missouri to transform the energy retrofit market for residential, commercial, industrial and institutional buildings, initially in seven targeted neighborhoods and then throughout the metropolitan area. As part of that effort, MARC received \$880,000 to assist with strengthening Kansas City's green jobs pipeline to provide residents of target areas a career path for green job opportunities--from training to certification to employment.

As part of this effort, the Green Workforce Initiatives Task Force was established. The task force comprised representatives of the areas workforce development agencies on both sides of the state line, non-profit organizations committed to similar efforts, Green Impact Zone staff, educational institutions, and private business.

The charge of the task force was to:

1. Develop a vision for what a strong green jobs pipeline system might look like for the Kansas City region;
2. Identify the potential market for green jobs;
3. Ensure services provided by stakeholders are part of the current system and how stakeholders and others might be involved in strengthening the system; and
4. Develop a set of recommendations for improvements to the system, including but not limited to, how the EnergyWorks KC grant funds could be invested and criteria for selection of grant recipients.

To that end, the task force met four times from April to June 2011, resulting in:

- ☐ Strategies and tactics to strengthen the green jobs pipeline in the Kansas City region;
- ☐ Prioritization of those strategies;
- ☐ Criteria for awarding grant funds; and
- ☐ A recommended structure to evaluate funding request and a process to award the grant funds.

## Developing Kansas City's

### Green Jobs Pipeline

#### Part 2: Executive Summary

Over the course of a three-month time period, the Green Workforce Initiatives Task Force worked to determine how to strengthen the green jobs pipeline in the Kansas City region. The impetus for the effort was an \$880,000 EnergyWorks grant, which has the purpose of providing residents of target areas a career path for green job opportunities--from training to certification to employment.

This executive summary outlines the results of the task force work:

- ❑ Pipeline Strategies
- ❑ Strategic Priorities
- ❑ Grant Award Criteria
- ❑ Structure and Process









The resources considered by the task force can be found in Section 3 of this document: The Pipeline Today in Kansas City and Elsewhere. Detail regarding task force deliberations can be found beginning on Page 19 in Section 4 of this document: Plan Development.








## Section 2.1: Pipeline Strategies

On Page 36 of this document is the Green Workforce Pipeline, complete with the strategies, tactics to achieve them and potential partners.

### *Create a demand for Green Jobs*






-  Promote entrepreneurship and small business development for green businesses
-  Facilitate legislation at local and state level regarding green practices
-  Convene industry employers to identify green jobs and programs
-  Develop incentives for green job creation
-  Advocacy at federal and state levels
-  Create green procurement practices
-  Partner with local governments
-  Showcase success stories

### *Provide Training, Skills Development and Career Planning*

-  Identify employer training needs
-  Identify pathways to green jobs and ensure training is available, measurable and appropriate
-  Develop programs to re-train incumbent workers
-  Develop incumbent worker training programs that pay for themselves
-  Create career development programs that lead to jobs



### *Connect People to Green Jobs*

-  Link the skilled workforce to employers
-  Identify best practices training that is current/cutting edge
-  Develop a green center
-  Develop an on-line database for green jobs
-  Ensure potential employees have transportation to work

### *Develop Comprehensive Public Awareness Campaign*

## Section 2.2: Strategic Priorities

The following are the strategies identified by the task force as those of the highest priority.

### *Create a demand for Green Jobs*

- o Promote entrepreneurship and small business development for green businesses
- o Convene industry employers to identify green jobs and programs
- o Facilitate legislation at local and state levels regarding green practices

### *Provide Training, Skills Development and Career Planning*

- o Identify employer training needs
- o Identify pathways to green jobs and ensure training is available, measurable and appropriate

### *Connect People to Green Jobs*

- o Link the skilled workforce to employers

### *Develop Comprehensive Public Awareness Campaign*

According to the Department of Labor, a green job is either:

A job in business that produces goods or provides services that  
benefit the environment or conserve natural resources OR  
one in which workers' duties  
involve making their establishment's production processes more  
environmentally friendly or use fewer natural resources.




### Section 2.3: Grant Award Criteria

The criteria by which funding requests should be considered are:

#### *Priority*

- o Align with priorities identified by the task force
- o Create new green jobs
- o Focus on green job sectors with a strong economic base
- o Engage the employer in furthering the regional green jobs pipeline
- o Develop jobs that pay more than minimum wage or further a specific green job pathway
- o Foster collaboration either through public/private partnerships or by leveraging grant funds with other funding mechanisms

#### *Population Served*

- o Assist the seven target neighborhoods as outlined in the EnergyWorks program
- o Engage and become a part of the community to which they are targeted
- o Focus on one of three groups within the workforce:
  -  Those who have been unemployed for considerable time
  -  Newly unemployed
  -  Incumbent workers wanting to grow into green job
- o Serve a segment of the population most affected, including but not limited to: youth, underemployed, unemployed, veterans, older, and disadvantaged workers
- o Support other EnergyWorks programs

#### *Accountable*

- o Are cost effective
- o Illustrate sustainability beyond the term of the grant
- o Are able to show measureable outcomes
- o Have demonstrated organizational capacity

*It should be noted that these criteria are meant simply to be guidelines. Grant proposals do not have to fulfill each of the criteria.*

## Section 2.4: Structure and Process

The green jobs pipeline has three distinct elements: creating a demand for green jobs, providing training and skill development, and connecting people to green jobs. The task force has stated that the emphasis should be given to those programs that specifically train people for green jobs and programs that actually create green jobs.

There is also a recognition that to create the jobs and foster the need for training, employers, potential employees, the buying public, businesses and local government agencies need to be aware of the potential for green jobs.

The task force agreed that the following allocations be a guideline for the grant funds.

- ☐ 45 percent: Job creation programs
- ☐ 45 percent: Training and Skill development programs
- ☐ 10 percent: Public education

Organizations can apply for separate funding for multiple programs, but no one program be granted any more than 35 percent of the total funds available. It is recognized, however, that one organization could submit a proposal that has job creation, training and public education components. Lastly, it is anticipated that the grants will be targeted to non-profit and public organizations.

Understanding that it is the MARC Board of Directors that has ultimate responsibility and decision-making on how funds awarded to MARC are allocated, the task force recommends the following structure and process be used to allocate the \$880,000 in EnergyWorks funds.

### *Structure*

The grant selection committee should include community members, representatives from workforce development organizations and MARC staff. The persons representing workforce development agencies would have to agree to excuse themselves during discussion on any application for which there may be a conflict. The task force wants to ensure that the committee has members who have experience and expertise in workforce development and/or in green industries. Further, the committee's work should be open and transparent.

### *Process*

The task force work will result in a detailed plan for using the EnergyWorks KC funds for workforce development and would inform the work of whatever committee structure is adopted. The task force decided that the grant committee would first determine categories of programs and activities and solicit proposals from area organizations with responses outlining how the funds would be used. This provides the committee greater latitude in granting the funds.

## Developing Kansas City's

### Green Jobs Pipeline

#### Part 3: The Pipeline Today in Kansas City and Elsewhere

Before determining how to strengthen the green jobs pipeline in the Kansas City region, information was gathered about the pipeline as it currently exists and how it fits into the context of best practices from around the country. Task force members were surveyed, local resources and stakeholders were consulted, and best practices research was conducted. The research results are summarized in this section of the task force report.

##### Section 3.1: Kansas City's Green Jobs Pipeline: 20

##### 11

To discuss the current state of the green jobs pipeline, task force members were surveyed; results of previous surveys were reviewed; and regional efforts of the Green Impact Zone, MARC and Kansas City Area Development Council (KCADC) were considered.

##### Task Force Survey

According to the task force member survey results, the predominant services provided are training programs, certification, and education and outreach for prospective employees. Few of the organizations represented by the task force provided workforce services to employers or conducted actual workforce development planning.

In terms of workforce development that specifically focuses on green jobs, much of the work is related to energy efficiency and home weatherization, energy auditors and environmental remediation. When asked what the organizations would hope to do in addition to their current work, they consistently replied that they would like to further develop green employment opportunities, including bringing green manufacturers to Kansas City, and to have a direct connection to the jobs that are in existence. More fully developing the demand for green jobs was identified as the greatest need in strengthening the green jobs pipeline in the Kansas City region. Put another way, the single largest barrier to developing a pipeline is the absence of demand for green jobs.

The task force members are optimistic about the region's ability to strengthen the pipeline, building on what they consider a strong foundation. To that point, respondents said:

- ❑ The City of Kansas City is focused on sustainability.
- ❑ The community college system is working to support green education and job development.
- ❑ Organizations routinely partner to provide services to train the workforce for green job opportunities.

Lastly, the task force members share a concern about funding workforce development for green jobs as well as developing the green jobs. They cited a reduction in future grant funds, limited resources available to their students, and the number of private businesses now focused on green job development.

#### Full Employment Council Survey

The task force also reviewed a survey conducted on behalf of the Full Employment Council by the University of Missouri-Kansas City Center for Economic Information. The following are highlights of that survey.

- ❑ There are 138 organizations with more than 50 employees that are potential green employers. Of those, 22 completed the survey.
- ❑ 45% of respondents produce green goods.
- ❑ 60% of respondents intend to expand their production of green goods.
- ❑ Of those completing the survey, most considered that green jobs require a college degree, listing LEED certification as a specialized training requirement.

*"We need a different on-ramp for people from disadvantaged communities. The leaders of the climate establishment came in through one door and now they want to squeeze everyone through that same door."*

*"If we want to have a broad-based environmental movement, we need more entry points. ...The green economy has the power to deliver new sources of work, wealth and health to low-income people."*

*Van Jones: in the October 17, 2007 New York Times.*

### Green Impact Zone

The Green Impact Zone is focused on developing a comprehensive approach to transforming a community, addressing every facet of the community's life. One of the initial areas of focus is job training and placement, and the following are current initiatives.

- ❑ The Green Impact Zone staff is working with existing job training and career development organizations to ensure that residents of the zone have full access to existing programs and opportunities.
- ❑ The Metropolitan Energy Center (MEC), the Full Employment Council (FEC), the Metropolitan Community Colleges and other organizations already train and certify individuals and companies to do weatherization. The Green Impact Zone staff works with these organizations to ensure zone residents are fully aware of training opportunities in weatherization and are able to access them. The goal is to convert weatherization jobs to longer-term, career ladder jobs in construction.
- ❑ The Green Impact Zone will work with public and private partners to develop a pipeline not only of job training opportunities, but to make sure that these opportunities are connected to long-term private sector jobs.



### Building a Greener KC

In 2009, the Building a Greener KC report was prepared for MARC by the Corporation for a Skilled Workforce with considerable stakeholder input provided through several planning meetings. Stakeholders identified how the region could meet the need for green workforce development. Listed here are some highlights from the executive summary.

- ❑ The industry is only slowly becoming “green” in response to customer demand. Demand is driven by incentives, public policy, and public awareness; knowledge of appraisers, lenders, and insurers; and the skills of architects, designers, and contractors in making a case for green building.
- ❑ Most training will be for incumbent workers and is most likely to be accomplished on the job.

- ❑ Green knowledge starts at the top; architecture, design, and management professionals need to understand and adopt green practices to enable construction workers to build green. Universities need to be part of the collaboration.
- ❑ There are a plethora of certifications for both buildings and workers, which can create confusion for consumers and professionals alike.
- ❑ If reliant on incentives, there is a danger that green practices may fade away when the incentives are no longer available. Green practices must become part of the culture – the way business is done.
- ❑ On-going collaboration among public and private education and training entities and between the training entities and employers would reduce duplication and increase relevance.

#### KCADC Advanced Energy Advisory Council

The Kansas City region's efforts to expand and strengthen its advanced energy industry are supported by an advisory council consisting of local industry experts and advocates from education, economic development, utilities, real estate and other support industries.

The Advisory Council's primary mission is to support the Kansas City Area Development Council (KCADC) in the attraction, expansion, retention and creation of companies or organizations in the advanced energy business. The Advisory Council's recommendations assist in advancing the capacity and capabilities in the Kansas City area for designing, engineering, commercializing, and manufacturing advanced energy systems including wind, solar, fuel cells, high energy battery, and advanced bio-fuels. KCADC has identified an initial list of 20 employers involved in advanced energy business.

#### Current Kansas City Pipeline Conclusion

Upon reviewing Kansas City's current green jobs pipeline, the task force was in consensus that there are many capable organizations providing training that were also willing to work together. Lacking is the demand for green jobs; the structure, process and program to develop that demand; and the funding to enhance green job development in our region.



### Section 3.2: What's Working Elsewhere



Understanding that other regions in the United States have already begun to strengthen their green jobs pipeline, a review was done of best practices from around the country. Some areas are still in the planning stages while others are actively pursuing their goals.

#### Green for All

Green for All is an Oakland, California organization that works in collaboration with the business, government, labor, and grassroots communities to create and implement programs that increase quality jobs and opportunities in green industry. As part of its work, Green for All has a Communities of Practice program, connecting practitioners with on-the-ground experience and national experts to develop cutting-edge practices for growing an inclusive green economy.

Green for All convened a group of training providers (like many of those in the Kansas City region) to start developing answers to questions about services, partnerships, curriculum, green credentials, links to employers, funding and measuring their results. To serve the workers it trains and the industries in which those workers should be placed, the training providers identified five keys to success for green workforce development. Those keys are:

1. Knowing the services, resources and advocacy needed for its target population;
2. Building strong relationships with the industry and its representatives to help the industry grow and connect graduates to good jobs;
3. Providing education, skills and industry certifications to bring its target population to the industry employment opportunities;
4. Meaningfully measuring and reporting success; and
5. Diversifying its funding.

### Ella Baker Center Initiative: Oakland Green Jobs

The Green-Collar Jobs Campaign of the Ella Baker Center advocates for the creation of "green-collar" jobs (quality, career-track, skilled, hands-on jobs in industries like renewable energy, water and energy efficiency, green building, habitat restoration, sustainable agriculture, and more), especially for low-income communities and communities of color.

The effort is guided by the "Three Ps":

- ☐ Partnerships: Building cross-sector coalitions that include leaders from unions, green businesses, environmental organizations, social justice groups, and education and training institutions.
- ☐ Policy: Crafting public policy solutions.
- ☐ Pilot Programs: Demonstration projects.

### Cornell Cooperative Extension: Tompkins County

The Cornell Cooperative Extension serves urban, suburban, town and rural areas by offering programs in five broad areas: Agriculture and Food Systems; Children, Youth, and Families; Community and Economic Vitality; Environment and Natural Resources; and Nutrition and Health.

One of its specific areas of focus is on green jobs. According to its website, "The emergence of green jobs in Tompkins County is becoming increasingly more evident as more homeowners begin to take steps towards making their homes more energy efficient. As the demand for home energy improvements increase, the need for a qualified workforce to meet those demands will likely increase at a rate higher than the current workforce can accommodate."

The agency supports this endeavor through education for employees, homeowners and business owners. One such example is its Green Building Seminar Series. One such seminar was on the *Local Building Materials Initiative*, a Cooperative Extension program to catalog and promote building materials being manufactured within 100 miles of Ithaca. Participants discussed how to overcome some of the challenges of sourcing and working with local building materials.

The program has also identified barriers to developing a green workforce and strategies to overcome them.

**Potential Barriers:**

- ❑ Shortage of skilled workers and entrepreneurs to expand weatherization and efficiency programs on a community scale
- ❑ Lack of widely accessible and locally-offered training
- ❑ Lack of placement, training, and advancement opportunities for apprentice labor, journeypersons, crew leaders, managers, and entrepreneurs
- ❑ Lack of integrated curricula among existing community colleges, vocational-technical schools, universities, and continuing education

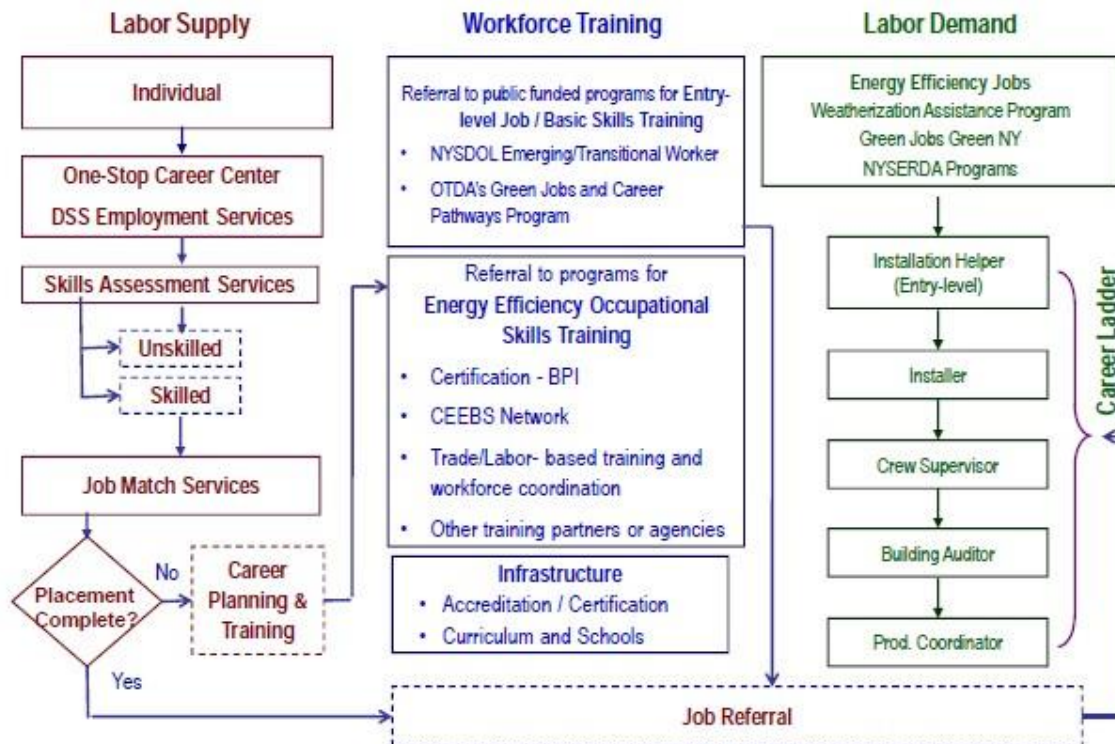
**Successful Strategies:**

- ❑ Subsidized occupational skills training with classroom, online, hands-on, and on-the-job instruction
- ❑ Partnerships with community colleges, vocational-technical institutions, and continuing education programs
- ❑ Added-skill re-training programs targeted to construction trades
- ❑ Construction trade apprenticeship programs
- ❑ Training-to-work programs
- ❑ Train-the-trainer workshops
- ❑ Collaborations to integrate components of green jobs workforce development pipeline

### Green Jobs Green New York: Workforce Development Program

The Green Jobs Green New York (GJ/GNY) Workforce Development Program is designed to create job opportunities, including opportunities for new entrants into the state's workforce, focusing on the long-term unemployed and displaced workers and new workforce entrants. The model below outlines key areas of coordination among the workforce development partners needed to deploy a comprehensive workforce development strategy.

## Green Jobs Green New York Workforce Development Framework



The GJ/GNY has four key plans of action. They are as follows.

### Equipment and Training Infrastructure Needs:

- ❑ Identify those who want to achieve certification.
- ❑ Create workshops and curriculum to support those needs.
- ❑ Provide equipment incentives and lending programs.
- ❑ Establish lab houses for field testing and certification.
- ❑ Work with training centers to schedule the field certification exam during the training for a more seamless path from training to certifications

### Certifications and Company Accreditation:

- ❑ Develop standards and related certifications for the commercial and residential sectors.
- ❑ Work with partners to accredit training curriculum.

Apprenticeships/Internships/On the Job Training (OJT):

- ❑ Recruit entry-level workers to be employed by participating contractors.
- ❑ Finance internships and OJT to support businesses that hire employees from green jobs readiness programs.
- ❑ Establish intermediaries to work with businesses, community based organizations, labor organizations and training providers so that training addresses business needs.

Curriculum Development and Non-Constructions Jobs

- ❑ Create an inventory of existing curricula.
- ❑ Identify what specific skill gaps persist, job categories needed and training curricula needed.
- ❑ Designate training programs to administer soft and foundational skill instruction.

Evergreen Cooperatives

The Evergreen Cooperatives of Cleveland, Ohio are employee-owned, for-profit companies that are based and hire locally. Evergreen is a partnership among the residents of six of the city's most disadvantaged neighborhoods and some of Cleveland's most important "anchor institutions", including the Cleveland Foundation, the City of Cleveland, Case Western Reserve University, the Cleveland Clinic, University Hospitals, and many others.

As the needs grew for economic development expertise, the Collective had to find business plan specialists, financing, workforce development trainers, community land trusts, and other partners. Community land trusts are set up now to buy the land while it's really inexpensive –they can then ensure stable rents for businesses, as well as a good return on investment on the land, if the community development efforts continue to succeed and land values increase.

Financing for green businesses is provided by a group called the Evergreen Fund, which is a 501(c)3 loan fund that will have a revolving line. Three businesses were launched in 2009 and 2010. Descriptions of the businesses follow.

Evergreen Cooperative Laundry: The cooperative laundry is solar-powered, energy efficient industrial scale laundry facility. This business was developed primarily as a response to the large medical community need for washing medical garments, was the most likely candidate for success, and was thus the first effort of the group. The laundry is gearing toward capacity of 10 million pounds of medical laundry per year.

Ohio Cooperative Solar (OCS): OCS installs solar panels during the summer and focuses almost exclusively on weatherization during the winter. OCS employs about 100 people. OCS found that working with non-profit partners was a major benefit in taking advantage of tax credits.

Green City Growers (GCG): GCG is a year round hydroponic veggie greenhouse located in a former industrial area. With a five acre facility that can grow up to 4 million heads of lettuce a year, it has the potential to become a major player in the regional food network. Projections are that it should employ up to 50 people.

The next green businesses planned are a community newspaper and a construction firm (mostly for remodels and renovations of existing/dilapidated buildings).

Evergreen companies hire and train employees from low- and moderate-income neighborhoods for jobs in the cooperative enterprises. A local nonprofit specializing in workforce development is recruiting workers through church and other networks. More than 90 neighborhood residents—some who have been laid off during the current recession, others who have been underemployed for years—attended the first community hiring meetings. Some of these men and women have become the first Evergreen employee-owners.

### [CleanEnergy Works Oregon](#)

CleanEnergy Works Oregon (CEWO) is a non-profit program established to reduce energy waste by encouraging homeowners to take action through transforming their energy-wasting homes into comfortable, energy efficient living spaces that keep cooler in the summer and warmer in the winter by offering no-money-down, easy financing and simple qualifications. CEWO hopes to transform at least 6,000 homes in three years. The program is made possible through partnerships among public, private and non-profit interests including utility companies, local lenders, local governments, Energy Trust of Oregon, the Oregon Dept. of Energy, and the U.S. Department of Energy.

### [Efficiency Kansas-Westar](#)

The Efficiency Kansas program was created to encourage energy efficiency to enhance insulation, air sealing and heating and cooling systems to help residential and small business consumers save energy and reduce their monthly utility bills. The program is financed through federal stimulus funds received by the Kansas Energy Office. The program allows Westar Energy customers to repay the cost of energy efficiency improvements to their home or business through their Westar utility bills. The only initial cost to the consumer is the \$100 energy audit required to be performed on a home or business.

### [Best Practices Conclusion](#)

While the approaches and partners vary, programs from across the country focus on four aspects of developing a green jobs pipeline.

- ❑ Labor: Who will do the work?
- ❑ Training: What training is available? What training is needed? Who will provide the training?
- ❑ Jobs: What jobs are there now? What jobs will there be?
- ❑ Funding: How do we sustain these jobs and keep the funding for them?

The Green Workforce Initiatives Task Force decided to focus on these four areas.

## Developing Kansas City's

### Green Jobs Pipeline

#### Part 4: Plan Development

##### Section 4.1: Process and Assumptions for Its Work

The Green Workforce Initiatives Task Force was convened by the Mid-America Regional Council to review existing programs that would support a green career pipeline, identify additional needs for such a pipeline, identify resources, and develop a recommended path forward. At the conclusion of its work, the task force was to develop a set of recommendations for improvements to the system, including but not limited to how the EnergyWorks KC grant funds could be invested and criteria for selection of grant recipients.

The task force comprised members of workforce development organizations, area universities and community colleges, economic development agencies, non-profit groups and private businesses.

The task force met four times over a three-month period. Descriptions of each of those meetings appear later in this section. The work of the task force resulted in:

- ❑ Strategies and tactics to strengthen the green jobs pipeline in the Kansas City region;
- ❑ Prioritization of those strategies;
- ❑ A recommended structure to evaluate funding requests; and,
- ❑ A process to award the grant funds.

##### Assumptions for the Work

To set the foundation for its work, several assumptions were developed, including the elements of a green jobs pipeline, the definition of green jobs, and the spectrum of jobs to be considered.

##### Elements of a Green Job Pipeline

Based upon the feedback received from task force members through a survey and other research, the key elements of a green job were determined to be:

- ❑ Labor Pool—the people and available workforce who will enter the green career pipeline
- ❑ Training—providing training that is necessary to get and keep green jobs
- ❑ Jobs—identifying and developing green jobs for those in the labor pool
- ❑ Funding—securing resources for continued growth and development of the pipeline

### Definition of Green Jobs

The task force determined that it would use the Department of Labor's definition of green jobs for the purpose of this process. According to the Department of Labor, there are two types of green jobs:

1. Jobs in businesses that produce goods and services which benefit the environment or conserve natural resources; and
2. Jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources.

### Spectrum of Green Jobs

The goal of the EnergyWorks grant is to transform the building retrofit market to encourage greater energy efficiency and conservation and to put City of Kansas City, Missouri residents to work in retrofitting the buildings. However, the task force stated a desire to focus on the spectrum of green jobs for the purpose of its work. That spectrum falls into six categories. They are:

1. Green Building
2. Green Salvage and Remediation
3. Green Energy
4. Green Agriculture
5. Green Manufacturing
6. Green Public Administration

## Section 4.2 Task Force Meetings

### Meeting No. 1: April 13, 2011

The task force first convened on April 13, 2011. The purpose of the meeting was to ensure that all task force members had the same understanding of the task the lie ahead and to establish a solid foundation for their work. They discussed the survey in which they participated prior to the meeting; current efforts in the region to strengthen a green jobs pipeline; and what occurring in similar programs around the country.

The task force participated in an exercise to identify the strengths and weaknesses in the four elements of a green workforce pipeline: labor pool, training, jobs and funding. The results of that exercise can be found on Page 32 of this document.



## Meeting No. 2: May 3, 2011

At its second meeting, the task force was asked to review potential strategies developed upon the strengths and weaknesses identified for labor pool; jobs; training and funding and discuss how best to achieve these strategies. The strategies considered were as follows.

### Labor Pool

- ② Develop public awareness campaign of the green jobs opportunities and the spectrum of *types* of employees that can be hired, from senior citizens to high school graduates to those who have just gotten their GEDs.
- ② Work with existing employers to identify on-the-job training to increase green job skills among incumbent workers.
- ② Work with area transit agencies to develop routes that link the labor pool to green jobs locations.

### Jobs

- ② Implement economic development incentives at all governmental levels for companies that provide green jobs and hire people currently being training for green jobs.
- ② Develop relationships with existing green companies within the Kansas City region to further enhance their markets.
- ② Foster green job growth through entrepreneurship and opening businesses such as those in the Evergreen Cooperative in Cleveland, Ohio.
- ② Expand the market for energy conservation employment by addressing state and local requirements and incentives.
- ② Work with the City of Kansas City, Missouri and other cities to encourage investments that create job opportunities through overflow control programs.
- ② Develop public awareness campaign for green industries, green jobs, and the green job pipeline.

### Training

- ② Create training programs that focus on “soft” skills and life skills: communication, timeliness, conflict resolution.
- ② Work with potential employers to better understand the training that is needed.
- ② Think beyond “semester based” training to “training on demand” so that prospective workers can receive the training when they need it.
- ② Coordinate training efforts, consolidating where it makes sense and developing “centers of excellence.”
- ② Establish K-12 curriculum that focuses on awareness of and subsequent training for green jobs.
- ② Create curriculum for professionals within the green job spectrum and not just those at the entry level.
- ② Establish apprenticeships that lead to full-time work.
- ② Set requirements for contractors to obtain certifications and training before awarded work on public projects.

Funding

- ❑ Work with federal legislators to stabilize funding for such programs.
- ❑ Develop public awareness program aimed at lending institutions to enhance understanding of green businesses and green jobs.
- ❑ Encourage private foundations and major corporations to provide funds for K-12 curriculum, youth and adult job training, job placement services, apprenticeships and other programs that help build a qualified green jobs workforce.
- ❑ Target the use of available grant funding to create jobs through business development and entrepreneurship.

Meeting No. 3: June 14, 2011

Based upon the results of the previous meeting, the task force reviewed a green workforce pipeline schematic that contained strategies and tactics to achieve those strategies. Recognizing that the strategies, tactics and potential partners were not all inclusive, the task force was first asked whether any strategies are missing. Each participant was then given six dots and directed to place the dots by the six strategies they deemed most important.

The complete list of identified strategies and the results of the exercise appear below.

Create a Demand for Green Jobs

- ❑ Promote entrepreneurship and small business development for green businesses: 11
- ❑ Facilitate legislation at local and state(PACE) level regarding green practices: 6
- ❑ Convene industry employers to identify green jobs and programs: 8
- ❑ Develop incentives for green job creation (PACE legislation): 5
- ❑ Advocacy at Federal and State (\$150 million available from State Department of Natural Resources) level: 4
- ❑ Create green procurement practices: 3
- ❑ Partner with local government: 0
- ❑ Showcase success stories: 0

Provide Training, Skills Development and Career Planning

- ❑ Identify employer training needs: 7
- ❑ Identify pathways to green jobs and ensure training is available, measurable and appropriate: 6
- ❑ Develop programs to re-train incumbent workers: 2
- ❑ Develop incumbent worker training programs that pay for themselves-2
- ❑ Create career development programs that lead to jobs: 0

Connect People to Green Jobs

- ❑ Link the skilled workforce to employers: 8
- ❑ Identify best practices training that is current/cutting edge: 4
- ❑ Develop a green center: 3
- ❑ Develop an on-line database for green jobs: 0

- ☐ Ensure potential employees have transportation to work: 0

#### Develop Comprehensive Public Awareness Campaign: 8

The development of a comprehensive public awareness campaign was originally included in “connecting people to green jobs.” However, the participants identified it as a premier strategy of its own.

Also at its third meeting, the task force discussed criteria regarding how to decide funds should be invested and grant recipients selected. The task force was asked to identify the categories of criteria and determine the measurements for each type of category.

#### Priority

Consider whether projects should be given preference that:

- ☐ Align with priorities identified by the task force
- ☐ Create new green jobs
- ☐ Assist the seven target neighborhoods as is outlined in the EnergyWorks grant.
- ☐ Take in to consideration that there are two different audiences: 1) Workers that have been unemployed for a long time and they need soft and hard skills training 2) Workers that are experiencing being unemployed for the first time
- ☐ Community penetration
- ☐ Accessible to the target market
- ☐ Creation of public/private partnerships
- ☐ Leveraging dollars with other funding mechanisms

#### Programs

- ☐ What kind of programs should be given preference?
- ☐ Do existing programs indicate expertise?
- ☐ Should innovation be supported?
- ☐ Are programs for incumbent workers considered differently than programs for those just entering the green jobs workforce?
- ☐ Identify short term victories
- ☐ Long-term investments (Ex. working with the deconstruction training class)
- ☐ Work based training vs. classroom training
- ☐ A community penetration component (on the street w/n the neighborhood to engage the residents). Program will need street credibility.

#### Other criteria

- ☐ Projects that foster collaboration
- ☐ Organizational capacity
- ☐ Sustainability beyond the term of the grant
- ☐ Leveraging other funds
- ☐ Targeting other specific groups such as youth
- ☐ Developing green jobs within the private sector
- ☐ Developing green jobs within the public sector

- ☐ Ability to measure outcomes
- ☐ Focus on sectors with strong economic base
- ☐ Engaging the employer

#### Meeting No. 4: June 29, 2011

At its final meeting, the task force reached consensus on the strategies of the highest priority, the criteria by which programs and services should be assessed and the structure and process which should be used to allocate the funds.

#### Strategic Priorities

The following are the strategies identified by the task force as those of the highest priority.

- ☐ Create a demand for Green Jobs
  - o Promote entrepreneurship and small business development for green businesses
  - o Convene industry employers to identify green jobs and programs
  - o Facilitate legislation at local and state(PACE) level regarding green practices
- ☐ Provide Training, Skills Development and Career Planning
  - o Identify employer training needs
  - o Identify pathways to green jobs and ensure training is available, measurable and appropriate
- ☐ Connect People to Green Jobs
  - o Link the skilled workforce to employers
- ☐ Develop Comprehensive Public Awareness Campaign

#### Criteria

The criteria by which funding requests should be considered are:

- ☐ Priority
  - o Align with priorities identified by the task force
  - o Create new green jobs
  - o Focus on green job sectors with a strong economic base
  - o Engage the employer in furthering the regional green jobs pipeline
  - o Develop jobs that pay more than minimum wage or further a specific green job pathway
  - o Foster collaboration either through public/private partnerships or by leveraging grant funds with other funding mechanisms
- ☐ Population Served
  - o Assist the seven target neighborhoods as outlined in the EnergyWorks program
  - o Engage and become a part of the community to which they are targeted
  - o Focus on one of three groups within the workforce:

- ☐ Those who have been unemployed for considerable time
  - ☐ Newly unemployed
  - ☐ Incumbent workers wanting to grow into green job
- o Serve a segment of the population most affected, including but not limited to: youth, underemployed, unemployed, veterans, older, and disadvantaged workers
- o Support other EnergyWorks programs
- ☐ Accountable
  - o Are cost effective
  - o Illustrate sustainability beyond the term of the grant
  - o Are able to show measureable outcomes
  - o Have demonstrated organizational capacity

The task force also warned against being so broad in the definition of green jobs so as to “greenwash,” calling virtually everything a green job in some way, while at the same time giving latitude in the definition.

Jobs should be tied to the goals of the EnergyWorks grant, which are to:

- 1) Transform the energy efficiency market in Kansas City, MO by educating property owners of the benefits associated with increasing a property’s energy efficiency and promoting the reduction of energy waste;
- 2) Stimulate the local economy by providing financing resources to property owners through the local loss reserve and other incentives, thus providing opportunities to use local, certified businesses to make improvements that reduce energy consumption; and
- 3) Stimulate the local economy by providing “green job” workforce development opportunities.

### Funding Allocations

The green jobs pipeline has three distinct elements: creating a demand for green jobs, providing training and skill development, and connecting people to green jobs. The task force has stated that the emphasis should be given to those programs that specifically train people for green jobs and programs that actually create green jobs. There is also a recognition that to create the jobs and foster the need for training, employers, potential employees, the buying public, businesses and local government agencies need to be aware of the potential for green jobs.

The task force agreed that the following allocations be a guideline for the grant funds.

- ☐ 45 percent: Job creation programs
- ☐ 45 percent: Training and Skill development programs
- ☐ 10 percent: Public education

Organizations can apply for separate funding for multiple programs, but no one program be granted any more than 35 percent of the total funds available. It is recognized, however, that one organization could submit a proposal that has job creation, training and public education components. Lastly, it is anticipated that the grants will be targeted to non-profit and public organizations.

### Implementing the Strategies: Structure and Process

Understanding that it is the MARC Board of Directors that has ultimate responsibility and decision-making on how funds awarded to MARC are allocated, the task force recommends the following structure and process be used to allocate the \$880,000 in EnergyWorks funds.

#### Structure

The grant selection committee should comprise community members, representatives from workforce development organizations and MARC staff. The persons representing workforce development agencies would have to agree to excuse themselves during discussion on any application for which there may be a conflict. The task force wants to ensure that the committee has members who have experience and expertise in workforce development and/or in green industries. Further, the committee's work should be open and transparent.

#### Process

The task force work will result in a detailed plan for using the EnergyWorks KC funds for workforce development and would inform the work of whatever committee structure is adopted. The task force decided that the grant committee would first determine categories of programs and activities and solicit proposals from area organizations with responses outlining how the funds would be used. This provides the committee greater latitude in granting the funds.

**Developing Kansas City's**

**Green Jobs Pipeline**

**Appendices**

**Task Force Membership** **Page 29**

**Area Organizations** **Page 30**

**Green Jobs Pipeline: Strengths and Weaknesses** **Page 32**

**Green Workforce Pipeline: Strategies, Tactics and Partners** **Page 37**



### Green Workforce Initiatives Task Force Membership

Contact	Organization
Jensen Adams	Metropolitan Energy Center
Warren Adams-Leavitt	OAI, Inc.
Brian Alferman	Habitat ReStore KC
Scott Angelmeyer	Workforce Partnership
Scott Boyce	University of Central Missouri
Tiki Denham	Green Vets
Bob Housh	Metropolitan Energy Center
Rob Jones	EETCKC
Franciena King	Full Employment Council
Laura Lesniewski	BNIM
Roland Maliwat	KCP&L
Anita Maltbia	Green Impact Zone
Jay Matlack	Kansas City Kansas Community College
Margaret May	Ivanhoe Neighborhood Center
Clyde McQueen	Full Employment Council
Dennis Murphey	City of Kansas City, Missouri
Troy Nash	Zimmer Construction
Matthew Nugent	PREP-KC
Richard Piper	Kansas City Kansas Community College
Ted Reiff	The ReUse People
Kristin Riott	Bridging the Gap
Clare Roberts	Metropolitan Community College
Debbie Rulo	Johnson County Community College
Gerald Schechter	City of Kansas City, Missouri
Randy Winchester	Johnson County Community College
Ryan Wing	Johnson County Community College





## Area Organizations

Below is a summary of organizations within the Kansas City metropolitan area and their current role in environmental programs and workforce development as it pertains to green jobs.

**BRIDGING THE GAP** educates citizens, businesses and government on the impact of decisions to make the region and community green, healthy and sustainable. They are currently applying jointly for an EPA grant with Metropolitan Energy Center and OAI of Chicago to coordinate the recruiting, training and ultimate placement of 48 people in the next two years. Bridging The Gap's role is to help with recruiting outreach and use their Environmental Excellence Business Network contacts to mentor green job trainees, provide some training about corporate needs, and find employment opportunities.

**FULL EMPLOYMENT COUNCIL** serves as one-stop career center in Missouri for five counties: Jackson, Cass, Platte, Ray and Clay. They work with employers to supply them with a skilled workforce and provide job seekers with successful training. They have a Green Jobs Taskforce, Workforce Board for on-the-job training (OJT), and provide classroom training.

**THE GREATER KC CHAMBER OF COMMERCE** convenes The Greater Kansas City Climate Protection Partnership and Chamber's Workforce Development Division are working on similar efforts in green job development in the region.

**GREEN VET** is working with Ivanhoe Neighborhood on deconstruction activities with EnergyWorks KC. They train all veterans and native warriors in green collar careers and prepare through internship projects on tribal lands, while assisting in homelessness, childcare and transportation.

**GREEN WORKS KC** fosters relationships with urban youth through experiential learning and paid internship opportunities. Young adults learn to care for the environment, experience meaningful career ladders, gain skills that assist them in becoming productive employees.

**HABITAT RESTORE KC** accepts donations of new and used building materials from individuals, contractors and retailers. They will be receiving materials from EnergyWorks KC deconstruction projects. ReStore also has environmental initiatives such as: creating rain gardens, recycling material, and deconstruction activities.

**JOHNSON COUNTY COMMUNITY COLLEGE** offers training for Building Performance Institute (BPI) certifications, Efficiency Kansas auditors, energy efficiency workers, and other green collar jobs. They are working on developing a mentoring program for new people entering these fields of green collar work.

**KCP&L'S** Economic Development Division works with regional and local economic development groups. They help develop programs and services to educate and assist partners with business retention and recruitment efforts.



**METROPOLITAN COMMUNITY COLLEGE** offers training for Building Performance Institute (BPI) certification, energy efficiency improvement techniques, business development courses, etc. They are also working on a mentoring program for new energy auditors.

**METROPOLITAN ENERGY CENTER (MEC)** creates resource efficiency, environmental health, and economic vitality in the Kansas City region.

**OAI, INC.** is providing innovative workforce development in environmental remediation and home weatherization. OAI is currently researching potential employment and training opportunities in solid waste management as well.

**PREP-KC** works with school districts to increase college attendance, successful college completion and access to high-quality employment for urban students in the bi-state Kansas City region.

**RETHINK ENERGY** works with local contractors, businesses and community leaders. They train unemployed and underemployed citizens in green jobs and entrepreneurship. Provide energy tech training.

**UNIVERSITY OF CENTRAL MISSOURI (UCM)** has a career services office that is a centralized center that serves the entire campus and works with students and alumni on degree programs and certifications in targeted industries, including green jobs. UCM also works with employers in job placement and internships.

**WORKFORCE PARTNERSHIP** is the one-stop career center in Kansas for three counties: Wyandotte, Johnson and Leavenworth. They work with employers to supply them with a skilled workforce and provide job seekers with successful training.



### Kansas City's Green Jobs Pipeline: Strengths and Weaknesses

At its initial meeting, the task force participated in an exercise to identify the strengths and weaknesses in the four elements of a green workforce pipeline: labor pool, training, jobs and funding. The results of that exercise are provided here.

Labor Pool	
Strengths	Weaknesses
<ul style="list-style-type: none"> <li>? Strong local work ethic</li> <li>? Depth of experience for construction workers in labor pool</li> <li>? Large pool of unemployed available</li> <li>? Older workers with work ethic and skills</li> <li>? Large potential for growth</li> <li>? Individuals trained in green job skills waiting for economic recovery/demand</li> <li>? Additional job seekers can be trained relatively quickly</li> <li>? Agencies doing skill assessments increasing</li> <li>? Strong regional work ethic</li> <li>? Higher levels of education on average</li> </ul>	<ul style="list-style-type: none"> <li>? Employers use existing workers, don't hire new</li> <li>? Broadband/tech limitations</li> <li>? Lack of basic/soft skills               <ul style="list-style-type: none"> <li>o Math (basic)</li> <li>o Communications</li> </ul> </li> <li>? Older workers less desirable by employer</li> <li>? Transportation to green work sites</li> <li>? Knowledge or awareness of green jobs</li> <li>? Defining what a green job is</li> <li>? Accessibility for urban core job seekers to suburban jobs</li> <li>? Not a ladder in place yet; we're at first run               <ul style="list-style-type: none"> <li>o (Training most people for entry level)</li> </ul> </li> <li>? # of jobs needs to exceed trained pool. Need to cultivate</li> <li>? Kansas and Missouri don't require energy audits when homes sale. When Kansas and Missouri require audits the # of jobs will go up</li> <li>? Lacking overall picture of available skills</li> <li>? Segment of population lacks basic work skills; communications; problem solving; and conflict resolution</li> <li>? Public education in core city</li> <li>? Slow trend towards hiring</li> </ul>

Jobs	
Strengths	Weaknesses
☐ Entry level	☐ People don't know it can be a career

<ul style="list-style-type: none"> <li>o There is a ladder (i.e. start as tech, can then move up)</li> <li>? People can get jobs with re-training</li> <li>? New green employers coming to Kansas City (ex. Nordic, Smith Elect.)</li> <li>? Make at least a living wage</li> <li>? City/Govt. contracts</li> <li>? KCADC working to bring green employers to area</li> <li>? Area employment/economic stability</li> <li>? Unlimited potential</li> <li>? Can be self-employed</li> <li>? Green jobs currently have unknown potential</li> <li>? Green jobs do not require (complete) retraining</li> <li>? A lot of local/regional industries poised to "Go Green"</li> <li>? A lot of people are already in green jobs (previously not called that)</li> <li>? EDC/KCCC to the table towards employment T+E=jobs</li> <li>? Utility incentives</li> <li>? Attraction of green industries/EDC efforts</li> <li>? \$20 million – from EnergyWorks KC can help create demand</li> </ul>	<ul style="list-style-type: none"> <li>? Existing pool is retrained and doesn't allow unemployed in. Pool needs to be expanded</li> <li>? New green companies outside of urban core (2 JC, stops on Troost helpful)</li> <li>? Define "entry level"</li> <li>? Employers depend on public contracts</li> <li>? Requirements for pre-existing experience</li> <li>? Companies not stepping up</li> <li>? Economy and stimulus dollars will not be available</li> <li>? Reduced support for small business and entrepreneurial activity</li> <li>? Green industries may require less workforce</li> <li>? A lot of education may be required (i.e. engineering, design etc.)</li> <li>? Concise on skills/training needed for jobs</li> <li>? Lack of sustained investments toward jobs</li> <li>? Government \$'s into private industries (EDC)</li> <li>? Green market demand</li> <li>? Coordination/competition between local organizations</li> <li>? State line issues</li> <li>? Public awareness</li> <li>? Identification of green jobs in urban core</li> </ul>
---	---

Training	
Strengths	Weaknesses
<ul style="list-style-type: none"> <li>? OAI</li> <li>? MCC</li> <li>? UCM</li> <li>? JCCC</li> <li>? MEC</li> <li>? KCKSCC</li> <li>? Accredited portable certificates</li> <li>? Wealth of training opportunities</li> <li>? Amount of Community Colleges, etc.</li> <li>? Some = On-demand</li> <li>? Bi-state opportunities</li> <li>? Online courses</li> <li>? Public and private training</li> <li>? Unlimited opportunities: Anyone/Anything can be “Greener”</li> <li>? Anyone can engage (automotive, energy....)</li> <li>? Cost can be a strength compared to a 4-year degree</li> <li>? Young people very interested in greener world once it’s presented to them</li> </ul>	<ul style="list-style-type: none"> <li>? Soft skills must be integral part of vocational training</li> <li>? Employer unambiguous regarding specific skills needed</li> <li>? Training that does not lead to jobs</li> <li>? Stronger direct connection to employers</li> <li>? Stronger need for job path apprenticeships</li> <li>? Employers need to be involved in training curriculum development</li> <li>? No overall plan/coordination</li> <li>? Non degree job development certification</li> <li>? Too many training opportunities</li> <li>? Lack of employer value of green job training</li> <li>? Duplication of training</li> <li>? Non-coordination</li> <li>? Not readily available – semester based</li> <li>? Cost</li> <li>? Non-alignment of training with jobs (ratio of demand to supply)</li> <li>? Hard to define “green” (green-washing)</li> <li>? Gotten away from trade skills in favor of more academic skills</li> <li>? Lack of sufficient training to obtain final certification (e.g. energy evaluator) and lack of \$’s to buy equipment</li> <li>? Guidance of selecting which green job to pursue</li> <li>? Lack of industry based opportunities</li> <li>? More about job creation; Less about re- training existing job holders</li> <li>? Funding opportunities and training</li> <li>? Balancing time horizons: individual- now/industry-more time</li> <li>? Green jobs not emphasized in K-12</li> <li>? A lot of training at entry level. A need for professional development</li> <li>? Training need to incorporate life skills for young and poor</li> </ul>

Funding	
Strengths	Weaknesses
<ul style="list-style-type: none"> <li>❑ Federal funding from ARRA grants</li> <li>❑ Pell Grants for student funding (sub line: tied to credit courses: 1 semester of college for Pell)</li> <li>❑ Training Funding exists</li> <li>❑ EWKC- \$20million – leverage for demand private market</li> <li>❑ “Green” stuff is attractive (driven by Administration)</li> <li>❑ Any green opportunity has “Green Job” association</li> <li>❑ Private sector funding/ Venture capital dollars are heavily investing in green and clean technology</li> <li>❑ Economic recovery beginning</li> <li>❑ Loan availability</li> <li>❑ Local utilities becoming supportive</li> <li>❑ Potentials in addressing lending risks (credit enhancements)</li> <li>❑ Greater awareness results in greater acceptance</li> <li>❑ As demand increases, jobs will increase</li> <li>❑ Kansas City has some local examples of green businesses working</li> </ul>	<ul style="list-style-type: none"> <li>❑ Lack of scholarships for certification programs</li> <li>❑ ARRA dollars will go away in 1-2 years</li> <li>❑ Private/3<sup>rd</sup> party pay for students at university level</li> <li>❑ Employer demand for certification lacking</li> <li>❑ Possible lack of industry awareness/ green standards</li> <li>❑ Jobs may not exits</li> <li>❑ Companies unwilling to fund training</li> <li>❑ Lack of funding for incumbent workers</li> <li>❑ Lack of funding for entrepreneurs</li> <li>❑ Mostly federal (unreliable   not projectable   fickle)</li> <li>❑ Bureaucracy associated</li> <li>❑ Highly competitive</li> <li>❑ W/in an organization, “Green” may be considered a “luxury”</li> <li>❑ Lack of track record in knowing what we’re going</li> <li>❑ Payback on “Green” (long)</li> <li>❑ Requires upfront investment</li> <li>❑ Short-term incentive programs ending will be detrimental to business models relying on them</li> <li>❑ Lack of understanding of green project investments by banks</li> <li>❑ Lack of \$’s to market in areas of greatest need</li> <li>❑ \$’s for training does not carry over to gaining experience (apprenticeships)</li> <li>❑ Poor economy delaying private sector green activity</li> <li>❑ Green is new/ traditional feasibility studies don’t justify making a loan</li> </ul>

## Green Workforce Pipeline: Strategies, Tactics and Partners

### Employer Driven Approach



### Targeted Green Industry Sectors

Source: MERIC Green Jobs Report

#### Green Building and Construction

The building and construction sector is the primary focus for EnergyWorks KC. This sector includes jobs found in construction related activities, household manufacturing, household appliance manufacturing, design and remodeling services, and remediation services.

- ☐ Uses environmentally friendly materials and methods for residential and non-residential infrastructure
- ☐ Converts existing property to lessen negative impacts on the environment
- ☐ Provides healthy living spaces
- ☐ Converts sustainable or renewable resources into energy
- ☐ Replenishes resources such as water and oxygen
- ☐ Lessens impact on the waste stream

#### Green Manufacturing

Includes jobs found in engineering, research and development firms, and across all manufacturing sectors. Jobs in this sector include those involved in the research, development, and production of materials, parts, and final products within the following categories.

- ☐ Energy Efficiency
- ☐ Health
- ☐ Renewable Energy
- ☐ Safety

#### Green Energy

Conversion from conventional sources of energy to the technology and development of renewable, clean energy resources. Examples include:

- ☐ Energy production and generation activities
- ☐ Power distribution and plant operations
- ☐ Turbine power generation
- ☐ Installation, repair and electronics for windmills
- ☐ Bio-fuel manufacturing





### *Green Public Administration*

Includes jobs typically found in local, state, and federal government or in contracts related to government policy. Activities include the execution, oversight, and operational management of public policy in the areas of:

- ❑ Environmental Conservation
- ❑ Green Building
- ❑ Resource Management
- ❑ Energy
- ❑ Water Supply and Irrigation Systems
- ❑ Sewage Treatment

### *Green Salvage/Remediation*

Includes jobs found in waste management, environmental engineering, chemistry, salvage and maintenance occupations. Examples of these activities include:

- ❑ Material Extraction
- ❑ Environmental Cleanup
- ❑ Re-Use
- ❑ Product Conversion

### *Green Farming*

Jobs found in agriculture and forestry that include:

- ❑ Organic/Free Range Food Production
- ❑ Forest Preservation
- ❑ Renewable Energy Resource Production



## Create Demand for Green Jobs

Strategies	Tactics	Potential Partners & Implementers
Convene green industry employers from each green sector to identify programs they would implement to create more green jobs.	Partner with employer networking groups to host forums and engage employers to create regional Green Business Advisory Council.	Chamber's Climate Protection Group, MEC's Home Performance Contractor Network, Bridging the Gap's Environmental Excellence Business Network, FEC Green Career Advisory Council, UCM's NERI's Network, neighborhood based non-profits
Develop incentives that will result in more job creation within each green sector	Require training and hiring of area residents to receive such incentives	Private sector employers, public administration and local government programs, such as EnergyWorks KC
	Identify products that can be manufactured in KC and develop business attraction package	
Create green procurement practices	Create cooperative among local organizations to purchase green materials	
	Require government contracted services to be provided by trained contractors	EnergyWorks KC and MEC require all contractors to be BPI certified
	Require energy efficiency audits for commercial properties	City governments
	Encourage local governments to adopt policies giving priority to bids for green products and/or from green businesses	

## Create Demand for Green Jobs, continued

Strategies	Tactics	Potential Partners & Implementers
Promote entrepreneurship & small business development specifically focused on green businesses	Research franchises and green sectors that would be successful in KC	Kauffman FastTrac Programs, Small Business Development Centers
	Provide small business development education and assistance	MCC's Training for Tomorrow The Marion Way's Small Business Operation Principles - fee based
		UCN's NERI programs for entrepreneurs
		Small Business Development Centers, Johnson County Community College
	Create business partnerships and cooperatives between entrepreneurs	
	Develop an urban agriculture cooperative	MCC & JCCC offers Sustainable Agriculture Certificate affiliated with Johnson County Community College
	Develop start-up packet for green contractors with information on permits, licensing, certifications, networking, available resources, marketing	Small Business Development Centers
	Create incubator for green start-up businesses	Blue Hills Community Services
	Develop funding mechanisms for small businesses, including revolving loan funds and cash grants to provide working capital	
Partner with local governments to capitalize on programs that could provide green jobs	Work with Kansas City, Missouri and other communities to ensure Overflow Control Programs focus on green jobs	

## Provide Training Programs & Skills Development

Strategies	Tactics	Potential Partners & Implementers
Identify employer training needs	Partner with workforce centers to identify employers' hiring needs, such as LEED certifications	One-stop career centers; Workforce Partnership, Full Employment Council
Identify pathways to green jobs and ensure training is available, measurable and appropriate	Work with to-be-established Green Business Advisory Council to identify pathways and necessary training	Chamber of Commerce, Labor Unions, neighborhood based non-profits
	Develop articulation agreements among colleges and training provides to ensure that training programs are recognized from institution to another	JCCC programs: <input type="checkbox"/> Sustainability Supply Chain Course <input type="checkbox"/> Sustainable Business Certificate, Solar Tech Program <input type="checkbox"/> Energy Performance & Resource Management- Residential Auditing, A.A.S. <input type="checkbox"/> Sustainable Agriculture Entrepreneurship Certificate
		UCM NERI Programs: <input type="checkbox"/> Residential Energy Client Service Coordinator <input type="checkbox"/> Retrepreneur Training Program <input type="checkbox"/> Residential Energy Performance Administrator <input type="checkbox"/> Field Project manager <input type="checkbox"/> Energy Improvement model for Residential Energy Raters <input type="checkbox"/> Phase Management for Retrofit <input type="checkbox"/> Personnel Management for Retrofit
		MCC - Sustainability Programs: <input type="checkbox"/> Photovoltaics Certificate <input type="checkbox"/> Energy Efficiency Certificate <input type="checkbox"/> Green Manufacturing Certificate <input type="checkbox"/> HVAC Certificate or Associate's Degree
		MEC provides continuing education and professional development for contractors paid by the contractors



## Provide Training Programs &amp; Skills Development, Continued

Identify pathways to green jobs and ensure training is available, measurable and appropriate, continued	Develop articulation agreements among colleges and training provides to ensure that training programs are recognized from institution to another, continued	<p>KCKKK Sustainability Programs:</p> <ul style="list-style-type: none"> <li>☐ Bio-fuel Production Operations,</li> <li>☐ Building Analyst Quick Start,</li> <li>☐ Certified Green Supply Chain Professional,</li> <li>☐ Certified Indoor Air Quality Manager,</li> <li>☐ Certified Indoor Environmentalist,</li> <li>☐ Natural Gas Plant Operations,</li> <li>☐ Performing Comprehensive Building Assessments,</li> <li>☐ Principles of Green Buildings, Senior Certified Sustainability Professional,</li> <li>☐ Solar Power Professional,</li> <li>☐ Wind Energy Professional</li> </ul> <p>EETCKC Training Programs:</p> <ul style="list-style-type: none"> <li>☐ BPI Building Analyst Training,</li> <li>☐ Energy Auditor Training,</li> <li>☐ Advance REM/Design,</li> <li>☐ Supplemental CAZ/Furnace Training,</li> <li>☐ BPI Building Analyst Certification</li> </ul> <p>OAI, Inc Programs</p> <ul style="list-style-type: none"> <li>☐ Minority Worker Training Program: <ul style="list-style-type: none"> <li>o Hazardous Waste Operations and Emergency Response (HWOER)</li> <li>o Asbestos Abatement Worker/Supervisor</li> <li>o Lead Abatement Worker/Supervisor</li> <li>o Lead Renovation, Repair and Painting,</li> <li>o Mold Awareness</li> <li>o 10-hour OSHA Certificate</li> </ul> </li> </ul>
---	---	---



## Provide Training Programs &amp; Skills Development, Continued

Strategies	Tactics	Potential Partners & Implementers
Identify pathways to green jobs and ensure training is available, measurable and appropriate, continued	Develop articulation agreements among colleges and training provides to ensure that training programs are recognized from institution to another, continued	OAI, Inc Programs ② EPA-ARRA Brownfields Job Training Program: <ul style="list-style-type: none"> <li>o Weatherization Technician</li> <li>o Asbestos 16-hr Operations and Maintenance</li> <li>o 40-hr Hazardous Waste Removal</li> <li>o Lead for Remodelers, Renovators and Painters</li> <li>o 10-hour OSHA General Safety</li> <li>o Mold Remediation</li> </ul>
	Develop means to evaluate programs that provide quality training and appropriate certifications by incorporating DOE's Workforce Guidelines	
	Determine centers of excellence, with institutions capitalizing on their strengths	
	Provide soft skills and employability training	Use WorkKeys and WIN assessments at workforce centers and community colleges.
Create career development programs that lead to jobs	Develop mentorship and internship programs, such as the Green Jobs Coaches program	MEC offers mentoring for contractors' first 3 jobs on utility rebate work
	Solicit commitment from employers to provide internships, apprenticeships, and mentoring programs through 2013	
	Train auditors in the art of marketing energy audits and conduct energy audits for small commercial businesses	MEC
Develop program to re-train incumbent workers	Work with employers to target retraining, funding and career advancement	Kansas SESPT Training program, Missouri Energy Sector Job Training funds
	Develop incentives for companies to "retrofit" current positions to green jobs	

## Connect People to Green Jobs

Strategies	Tactics	Potential Partners & Implementers
Link the skilled workforce to employers	Maintain a database of individuals with skills and credentials that are available for work	FED, Workforce Partnerships, Green Impact Zone, neighborhood based non-profits
	Make workers accessible to employers through workforce centers and colleges	FEC, Workforce Partnership, Green Impact Zone, Colleges & Universities, neighborhood based non-profits
Develop and online database for green jobs	Link job seekers to training programs and certification requirements	KansasWorks & Missouri Career Source, neighborhood based non-profits
	Provide resume development resources through the database	
Ensure potential employees have transportation available to get to work	Map where green jobs are located in the region, determine needed transportation options, and facilitate them	
	Encourage public transit agencies to consider greening of their operations	MARC Transportation Services; KCATA
	Develop incentives for companies that provide transportation for employees in green jobs	
Develop comprehensive public awareness campaign, targeting those new to the workforce, incumbent workers, employers and training providers	Create comprehensive program, identifying all means with which to reach target audiences	
	Partner with school districts to create awareness and include green practices in curriculum	



*This material is based upon work supported, in whole or in part, by the Department of Energy - Office of Energy Efficiency and Renewable Energy under Grant Award Number DE-EE0003564 from the Energy Efficiency and Conservation Block Grant Program made available pursuant to the American Recovery and Reinvestment Act (RECOVERY ACT) of 2009.*

*This report, document or project was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.*



## **TRAIN THE TRAINER**

### **DECONSTRUCTIONWORKER**

BMRA Standardized Curriculum V1.1 02/15/13



---

*Acknowledgment:* "This material is based upon work supported, in whole or in part, by the Department of Energy - Office of Energy Efficiency and Renewable Energy under Grant Award Number DE-EE0003564 from the Energy Efficiency and Conservation Block Grant Program made available pursuant to the American Recovery and Reinvestment Act (RECOVERY ACT) of 2009."



## TRAIN THE TRAINER: DECONSTRUCTION WORKER

### COURSE SYLLABUS

Enter Organization Name

<b>Dates:</b>	Select Start Date to Select End Date	<b>Instructor:</b>	Enter Instructor Name
<b>Time:</b>	Enter start and end time	<b>E-mail:</b>	Enter contact email
<b>Location:</b>	Enter course location(s)	<b>Phone:</b>	Enter contact phone #

#### REQUIRED TEXTS/MATERIALS:

Deconstruction Worker Training Lesson Plans and  
Accompanying Materials

Introduction to Deconstruction: A Comprehensive Training  
Workbook

#### COURSE WEBSITES:

Enter course website, or type NA

#### COURSE PREREQUISITES:

Candidate trainers must be pre-approved by the BMRA to be  
eligible for certification as a BMRA local trainer for  
Deconstruction Worker Training.

Experience as an adult educator and experience in the fields of  
construction, demolition, deconstruction, and/or building  
material reuse may be required.

#### COURSE DESCRIPTION:

This training is designed to prepare trainers to present the  
introductory level deconstruction course, Deconstruction  
Worker Training (DWT).

#### COURSE OBJECTIVES:

By attending this training, participants will be able to:

1. Deliver the Deconstruction Worker Training (DWT) course content.
2. Prepare all facilities and materials for the DWT.
3. Incorporate adult learning principals into the DWT.
4. Modify DWT curriculum delivery to suit trainer style, student needs and training location.
5. Evaluate DWT participants and record results.

## COURSE ACTIVITIES:

- Discussion:  
Active participation in discussion is crucial to content mastery and critical thought.
- Experiential Activities:  
Case studies, simulations, and role playing will be utilized to provide practice and deeper understanding of course content.
- Competency Verification:  
Classroom exercises, quizzes and assignments will be used to verify competency.

## EVALUATION:

Successful completion of course and competencies verification and scores of 90% or greater on Deconstruction Worker Training certification exams (written and field) is required to obtain Trainer Certification.

## SCHEDULE

Day	Topic	Assignments/Activities
<a href="#">Click here to enter a date.</a>	Introduction to Deconstruction Worker Train the Trainer	Course overview, course preparation, adult learning concepts
<a href="#">Click here to enter a date.</a> to <a href="#">Click here to enter a date.</a>	Deconstruction Worker Training Sessions (80 hrs).	Lesson plans include trainer notes, engagement techniques, and alternative approaches. Participation in DWT training by all trainer candidates is strongly recommended. See instructor for alternative completion plan.
<a href="#">Click here to enter a date.</a> to <a href="#">Click here to enter a date.</a>	Individual Lesson Prep and Review	Before, during and after individual class sessions daily content will be prepped, reviewed, and results recorded. Participation by trainer candidates is strongly recommended. See instructor for alternative completion plan.
<a href="#">Click here to enter a date.</a>	Course Close-Out and Review	Course close-out, review of training, participant evaluation, and tailoring curriculum to local needs.

*Note: Schedule is subject to change at instructor's discretion.*

## ATTENDANCE:

Learners are expected to attend introduction and review session in their entirety, and are strongly encouraged to attend all DWT sessions and Lesson Prep/Review sessions. There are no excused absences, but if you are unable to attend all sessions, you will be required to develop a personal completion plan with the instructor. Classes will start and end on time and attendance and punctuality are critical to learner success in this course.

## PARTICIPATION:

Active participation in class sessions is essential to learning as well as to the effectiveness of the class environment. Active participation includes asking relevant questions, contributing to discussion, eliciting, listening to, and responding sensitively to the ideas of others, and actively engaging in all classroom activities.

**TRAIN THE TRAINER**  
DECONSTRUCTION WORKER

LESSON PLAN

## TRAIN THE TRAINER: DECONSTRUCTION WORKER

## LESSON PLAN: DAY 1

When delivering a Train the Trainer (TtT) program, it is important to “practice what you preach.” Pay particular attention to the adult learning theory principals, and deliver your training consistent with those principals.

General Guidelines to Teach *and* Follow:

1. Be prepared
2. Respect participants time and experience
3. State your expectations
4. Get to know your audience
5. Engage the participants and draw on a variety of learning styles
6. Plan an activity that gets the students involved immediately
7. Be mindful of the attention span of adult learners
  - a. 1 hr maximum of instruction before a break is ideal, especially in a lecture setting
  - b. Change direction or style of instruction at ~15 minute intervals
8. Be mindful of your instructional flow and instructional pace (slow down)
9. Allow for and guide toward peer to peer learning opportunities
10. State the objectives, teach the materials, review the objectives

**TRAIN THE TRAINER COURSE INTRODUCTION (30 min., 8:00am – 8:30am)****Exercise 1, Interactive Experiential Activity:**

**Step 1:** If possible arrive well ahead of time and put the classroom into a disorderly state, i.e. crooked desk, loose materials, blocked pathways. Display yourself in an unprofessional manner, i.e. feet up on desk and sleeping. Enlist the help of one or two of the first students to arrive, and let them in on your ploy. Ask them to respond negatively to the disorder and your disrespectful behavior. A few minutes after the scheduled start “wake-up” and ask the participants if they are there for woodshop, and then act surprised when they state that they are not.

**Step 2:** Apologize for your ruse, and ask the participants how this experience made them feel. Note responses on the board. Ask everyone but your helpers to step back out of the room for a few minutes, and put the space into an interactive, organized, clean learning environment. Organize the desks into a U shape setup if possible, without podiums or other barriers between you and the participants. Place course materials neatly at each seat and put course info on the board or projector.

**Step 3:** Invite the participants back into the classroom, greet them on their way in, welcome them to the class, introduce yourself, and ask them to take a seat. Ask how the participants feel about this experience as compared to the first one. Discuss the learning environment and lead into the course outline.

### **Exercise 1 Alternate, Interactive Experiential Activity:**

If you are not comfortable with, or do not feel that the above would be well received or manageable, follow the steps below (or something similar instead).

**Step 1:** Start with the classroom setup in a typical desk in rows and columns fashion. Begin by asking the class how this layout makes them feel.

Does it make them feel like children?

Does it lend for an interactive learning experience?

Call on someone in the back of the class, and after they speak, ask the other students how they felt about turning around to hear his or her response.

**Step 2:** Ask everyone to stand-up, and direct them how to rearrange the classroom to your specification. Ask how the participants feel about this layout as compared to the first one. Discuss the learning environment and lead into the course outline.

### **TRAIN THE TRAINER COURSE OUTLINE (15 min., 8:30am to 8:45am)**

Describe and identify the course materials that the participants have been provided. Walk the participants through the course syllabus and course expectations, and explain that the objectives will be covered in detail shortly. Manage expectations and answer questions accordingly.

### **5 Minute Break (5 min., 8:45am to 8:50am)**

### **TRAIN THE TRAINER INTRODUCTIONS (~25 min., 8:50am to 9:15am)**

Get to know your participants and introduce yourself to them. Ask each participant to tell the class about themselves by briefly answering a few questions, such as:

What is your name?

Why are you taking this class?

What experience do you have in adult education, training, construction, demolition and/or deconstruction?

Name something that you would like for your classmates to know about you.

Introduce yourself and describe your qualifications and experience.

Instructor should pay close attention to time on this exercise, being careful to honor each participant's experience, while not allowing this session to run over the allotted time. More participants = less time for each to introduce themselves.

### **TRAIN THE TRAINER COURSE OBJECTIVES (30 min., 9:15am to 9:45am)**

#### **PP slide 1. Program Introduction**

Discuss program funding, partners and design emphasizing why this opportunity is available for the participants and what resources are available to help them succeed.

*This is a great opportunity to invite all of the program partners and allow each of them to briefly state their role as it pertains to the participant experience.*

#### **PP slide 2. The Building Materials Reuse Association (BMRA)**

The BMRA is a 501 c3 non-profit educational and research organization whose mission is to facilitate building deconstruction and the reuse / recycling of recovered building materials.

Successful completers of the Train the Trainer: Deconstruction Worker Training program and certification will be qualified to deliver the BMRA Deconstruction Worker Training under authority of a local license between the BMRA and the local training provider.

**PP slide 3.** Title Page: Course Outline

**PP slide 4.** Course Objectives

Review the course objectives; discuss how and when each will be covered.

By attending this training, participants will be able to:

1. Deliver the Deconstruction Worker Training (DWT) course content.

Introduced in Session 1 (today), K-W-L exercise (today), and individual action plans will be developed to ensure all course content is adequately learned. Ideally, each participant will have the opportunity to attend all 80hrs of the DWT, as well as the prep and review sessions.

2. Prepare all facilities and materials for the DWT.

Handouts and guidance documents provided to participants (today), content discussed throughout TtT course and throughout DWT program. Briefly provide an overview of the guidance documents provided and how to use them.

3. Incorporate adult learning principals into the DWT.

Taught in Session 2 (today) but covered and modeled throughout all aspects of the training.

4. Modify DWT curriculum delivery to suit trainer style, student needs and training location.

Covered in review sessions (end of course), with preliminary discussions during DWT Training.

5. Evaluate DWT participants and record results.

Covered in review sessions (end of course), with preliminary discussions during DWT Training.

#### **TRAIN THE TRAINER BREAK (15 min., 9:45am to 10:00am)**

**PP slide 5.** Break

#### **TRAIN THE TRAINER SESSION #1 COURSE CONTENT (50min., 10:00am to 10:50am)**

**PP slide 6.** Title Page: Session #1, Delivery of Course Content

**PP slide 7.** Session #1 Learning Objectives

Review the learning objectives; explain that some of the content will be covered in today's session, but much will need to be covered individually or during the DWT course sessions. Each participant will develop an individual action plan to ensure course content knowledge is established.

By attending this session, participants will be able to:

1. Understand the general core competencies to be delivered in the DWT.  
*Slides, handout, and exercise (today); balance as established in action plan.*
2. Access the resources needed to prepare for delivery of course content.  
*Text, course materials, course attendance and participation, action plan.*
3. Identify individual methods to be used to acquire knowledge needed for delivery of course content.  
*K-W-L and action plan.*
4. Begin developing an individual action plan for the course.  
*Homework assignment.*

**PP slide 8.** Core Competencies: What are they?

**PP slide 9.** Core Competencies: Where to find them.

**PP slide 10.** Core Competencies: For the Deconstruction Worker.

**PP slide 11.** Core Competencies: K-W-L exercise

Refer to “KCKCC Train the Trainer - CC KWL” handout and “KCKCC Train the Trainer - Deconstruction Worker CCs” handout.

Break participants into pairs or have them work individually depending on class dynamic.

Have each participant fill in the “K” and “W” portions of the handout with reference to the Deconstruction Worker CCs handout. Go around and review progress with each group and/or participant, reviewing a few at a time as a class. Explain how to use the “L” portion of the handout as a guideline for an action plan.

**PP slide 12.** Session #1 Review: Delivery of Course Content

**PP slide 13.** Session #1 Close: Delivery of course Content  
Questions

#### **TRAIN THE TRAINER BREAK (10 min., 10:50am to 11:00am)**

**PP slide 14.** Break

#### **TRAIN THE TRAINER SESSION #2 Adult Learning Theory (60min., 11:00am to 12:00pm)**

**PP slide 15.** Title Page: Session #2, Adult Learning Theory

**PP slide 16.** Session #2 Learning Objectives

*Review the learning objectives. Relate back to the first experience of the day. Highlight as you go, how your methods demonstrate adult learning theory practices.*

By attending this session, participants will be able to:

1. Utilize the basic principles of adult learning and the strategies appropriate for teaching adults.  
*Covered in the lesson and PP slides.*
2. Implement strategies to create a comfortable learning environment.  
*Relate this morning’s exercise. Also covered in the PP slides.*
3. Understand the impact of physical positioning, gestures, use of podiums, and tone of voice on receptivity of audience.  
*Interactive exercise and covered in PP slides.*



4. Utilize active listening and feedback techniques.

Covered in the PP slides and demonstrated during delivery.

**PP slide 17. Know Your Audience**

Discuss the differences between the needs of industry professional seeking credentials, college students seeking a degree or certificate and participants in a workforce development program geared. Workforce development program participants are often, by design, the group with the most obstacles to employment. Discuss how this may affect your approach, expectations and priorities as an instructor.

**PP slide 18. Basic Principals**

Present the basic principles of adult learning theory (Andragogy) as a foundation for instructional practice.

1. Adults need to be involved in the planning and evaluation of their learning.
  2. Adults need to know why they need to learn something.
  3. Experience (including mistakes) provides the basis for learning activities.
  4. Adults are most interested in learning subjects that have immediate relevance to their job or personal life.
  5. Adult learning is problem-centered rather than content-centered.
  6. Adults respond better to internal rather than external motivators.
- (Knowles, 1984)

**PP slide 19. Creating a Comfortable Learning Environment**

With the basic principles in mind, it is important to create a comfortable learning environment for adult learners. Bear in mind that there may be some resistance or intimidation associated with “school” for some adult learners.

- A. Point out strategies to alleviate apprehension as indicated on slide. Approach the learning interaction as equals investigating and learning together.
- B. Ask learners to suggest other ideas.
- C. A particular caution is to make sure that you spend the time to consider learners’ responses when you elicit them.

**PP slide 20. Teacher/Trainer**

The role of the teacher/trainer should also be approached differently when working with adult learners. The didactic “big jug and little mugs” approach that many of us experienced as young students is not appropriate.

- A. Because adult learners bring a wealth of life experience and are more self-directed, the trainer should act more as a catalyst, facilitator, guide, problem-poser, and content resource than the transmitter of information.
- B. Guiding learners to question, discover, and reflect should be the real work of the trainer.

**PP slide 21. Strategies**

Share instructional strategies that align with the principles of andragogy.

- A. Experiential learning activities are particularly effective as they require learners to problem solve and learn from any “mistakes” in their responses. Additionally,

activities such as case studies, simulations, and role playing are designed to have immediate relevance to the adult learner.

- B. Graphic organizers can also be powerful learning tools as they assist learners with organizing material and they can be individualized by the learner to best meet their learning styles and preferences.
- C. Because adult learners bring a wealth of previous life experience, rely heavily on these experiences as they relate to the topic being presented. Be sure to encourage learners to share experiences that went badly as well as those that went well. As noted in the principles of andragogy, mistakes can be powerful learning opportunities.
- D. To encourage investment and engagement, make the relevance of this training explicitly clear to learners (i.e., to get a better job, to protect their safety on the job site, etc.). This can be accomplished by asking the learners themselves to explain how the training will be valuable to them.
- E. Like you, adult learners have little patience for having their time wasted. Show respect for adult status/life responsibilities by being organized, staying on task, and starting and ending class sessions on time.
- F. Adult learners often respect the knowledge of “peers” who have experience with the topic under discussion. As such, collaborative group work allows learners to learn from each other and act as “experts” when presenting what was learned to another small group or to the entire group.

**PP slide 22.** Utilize and Stimulate the Senses

Review the chart and discuss techniques to engage each mode. Pay particular attention to the estimate that we learn 90% of what we teach, and discuss how peer to peer learning can be encouraged to allow the participants to teach each other and thereby learn more themselves.

**PP slide 23.** Accommodate Learning Styles

Adults have distinct learning styles. In the simplest terms, adults learn best with their eyes, their ears, or their bodies.

- **Visual learners** – “Show me.”
  - o Visual/verbal.
  - o Visual/nonverbal.
- **Auditory/verbal learners** – “Tell me.”
- **Tactile/kinesthetic learners** – “Let me do it.”

Instructors should consider the learning styles of their students when preparing lessons.

- Visual learners learn best with their eyes. “Show me” is their motto. This group can be further divided into visual/verbal and visual/nonverbal learners.
  - o Visual/verbal learners.
    - f Learn best when information is presented visually and in words.

- f Benefit from written information.
  - o Visual/nonverbal learners.
    - f Learn best when information is presented with graphics (e.g., in photos, pictures, charts, and diagrams).
    - f Visualize a picture in their minds.
    - f May not like to work in large collaborative groups.
- Auditory/verbal learners learn with their ears. “Tell me” is their motto.
  - o Learn best when information is presented verbally.
  - o Benefit from listening to lectures and participating in group discussions.
  - o Learn best when interacting with others in a listening/speaking exchange.
- Tactile/kinesthetic learners learn with their bodies. Their motto is “Let me do it.”
  - o Learn best when physically engaged in a hands-on activity.
  - o In a classroom, prefer demonstrations to lectures.
  - o Anecdotally, most WAP installers are tactile/kinesthetic learners. Show and tell, then let them at it.

Vary teaching techniques to address all three learning styles when course content allows.

Ask students which type of learner they think they are.

*Distribute “What’s Your Learning Style” and let students complete the questions. Were people right about their personal learning styles?*

**PP slide 24. Active Listening**

It is critically important that trainers practice active listening techniques.

- A. If comments are not attentively listened to, adult learners may respond with resistance and disengagement. They are not interested in being humored and will not continue to contribute if their responses are not taken seriously and received as having value.
- B. Present the active listening techniques presented on the slide.
  - i. Role play – Divide into pairs and have trainers practice active listening techniques through role play

**PP slide 25. The Three R’s**

- Repeat.
- Respond.
- Reinforce.

Repeat valuable student comments and contributions to the class. This technique promotes conversation and applies one of the basic tenets of learning: reinforcement. For example, if a student points out a creative way to remove hardwood flooring in a bungalow, summarize the method, thereby acknowledging the contribution.

**PP slide 26. Know Your Goals**

Now that you understand how to engage the adult learner, be sure to apply those concepts to the goals that you seek to accomplish in the course. Does this change any of

your intended activities or responses? Does the class composition effect how you will seek to achieve these goals?

**PP slide 27.** Session #2 Review: Adult Learning Theory

**PP slide 28.** Session #2 Close: Adult Learning Theory

Questions

**PP slide 29.** Reference

**PP slide 30.** Day 1 Review: Course Objectives

Review what was covered today and re-discuss how and when the rest will be covered.

Discuss the individual action plans; refer back to K-W-L worksheet.

Discuss the upcoming training sessions and the Trainer Lesson Plans that they will receive, corresponding to each session. Note that blue boxes will contain rationales and pointers for trainers.

**PP slide 31.** End of Session

End of Day 1

**TRAIN THE TRAINER**  
DECONSTRUCTION WORKER

PRESENTATION



---

*Acknowledgment:* “This material is based upon work supported, in whole or in part, by the Department of Energy - Office of Energy Efficiency and Renewable Energy under Grant Award Number DE-EE0003564 from the Energy Efficiency and Conservation Block Grant Program made available pursuant to the American Recovery and Reinvestment Act (RECOVERY ACT) of 2009.”

Welcome

V1.1

Train the Trainer: Deconstruction Worker



[www.BMRA.org](http://www.BMRA.org), [contact@bmra.org](mailto:contact@bmra.org), (773) 340-BMRA



COURSE

OUTLINE

Winter 2013  
V1.1

BMRA Train the Trainer: Deconstruction Worker

©Building Materials Reuse Association, 2013, All Rights Reserved



Course

Objectives

V1.1

BMRA Train the Trainer: Deconstruction Worker

By attending this training, participants will be able to:

1. Deliver the Deconstruction Worker Training (DWT)

course content.

2. Prepare all facilities and materials for the DWT.

3. Incorporate adult learning principals into the DWT.

4. Modify DWT curriculum delivery to suit trainer

style, student needs and training location.

5. Evaluate DWT participants and record results.

©Building Materials Reuse Association, 2013, All Rights Reserved



TRAIN THE TRAINERS SESSION #1



DELIVERY

OF

COURSE

CONTENT

Winter 2013  
V1.1

BMRA Train the Trainer: Deconstruction Worker

©Building Materials Reuse Association, 2013, All Rights Reserved

Train the Trainer Session 1:

Delivery of Course Content

V1.1 BMRA Train the Trainer: Deconstruction Worker

By attending this session, participants will be able to:

- 1. Understand the general core competencies to be delivered in the DWT.
- 2. Access the resources needed to prepare for delivery of course content.
- 3. Identify individual methods to be used to acquire knowledge needed for delivery of course content.
- 4. Begin developing an individual action plan for the course.

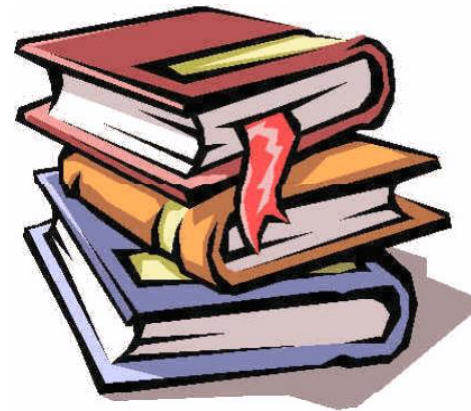
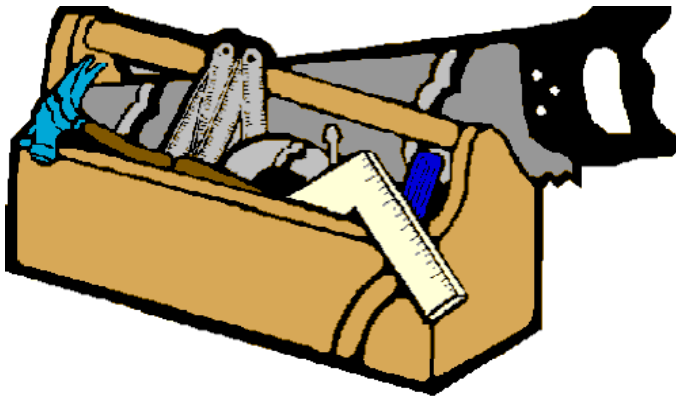
# Core Competencies

V1.1

BMRA Train the Trainer: Deconstruction Worker



The Core Competencies (CC) are groupings of skills, concepts and knowledge used by current deconstruction practitioners, identified by experienced industry experts, and required for workers in the deconstruction and building materials reuse industries.



# Core Competencies

V1.1

BMRA Train the Trainer: Deconstruction Worker

$\frac{3}{4}$  These CCs are found in the textbook:

$\frac{3}{4}$  *Introduction to Deconstruction: A Comprehensive Training Workbook*, by the Building Materials Reuse Association (BMRA).

$\frac{3}{4}$  Refer to the content page and Introduction Page (iii) for a list and overview of the CCs.

$\frac{3}{4}$  Each of the chapters of the Text cover a CC, likewise the DWT will roughly follow the CCs and reference them throughout.

~~the DWT will roughly follow the CCs and reference~~

# Deconstruction Worker CCs

V1.1

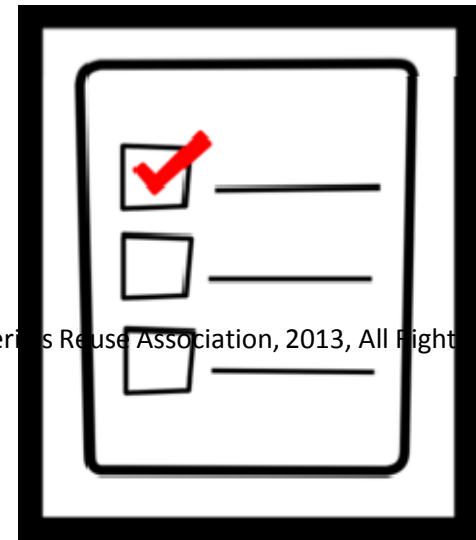
BMRA Train the Trainer: Deconstruction Worker

$\frac{3}{4}$  Although there are 10 CCs, not all aspects of each CC will apply to the Deconstruction Worker Training.

$\frac{3}{4}$  Refer to “Deconstruction Worker Core Competencies” handout.

$\frac{3}{4}$  Using this handout and the Deconstruction Worker CC K-W-L worksheet lets get a better understanding of your knowledge levels.

**worksheet let'**



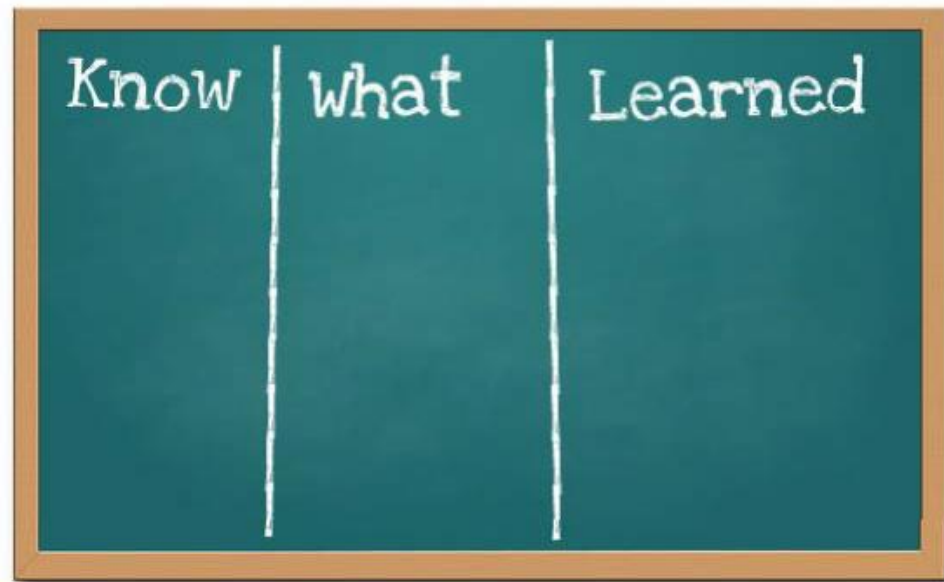
©Building Materials Reuse Association, 2013, All Rights Reserved

# Learning the CCs

V1.1

BMRA Train the Trainer: Deconstruction Worker

- $\frac{3}{4}$  What do you know about each of the CCs?
- $\frac{3}{4}$  What do you want to know?
- $\frac{3}{4}$  How will you go about learning it?





# Train the Trainer Session 1 Review:

Delivery of Course Content

V1.1 BMRA Train the Trainer: Deconstruction Worker

- %% Ten Core Competencies, with subsets specific to the Deconstruction Worker.
- %% Resources: Textbook, course materials, handouts, instructor, classroom, field and lab activities.
- %% Individual methods: Study, participation, practice.
- %% Develop an action plan.

## Train the Trainer Session 1 Review:

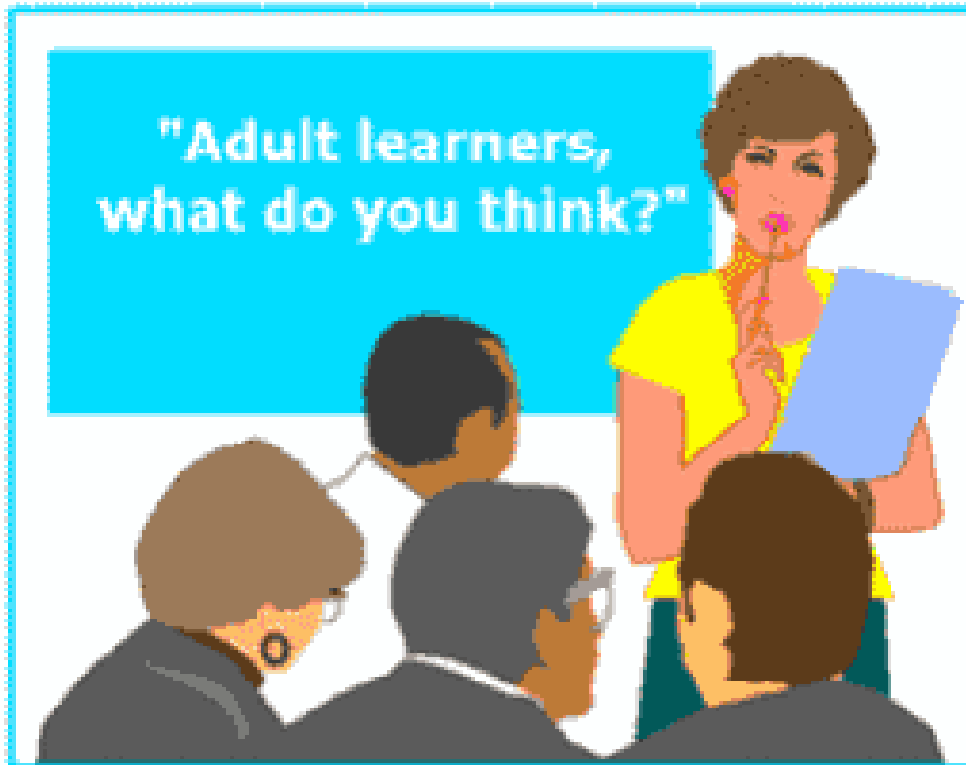
Close

V1.1

BMRA Train the Trainer: Deconstruction Worker

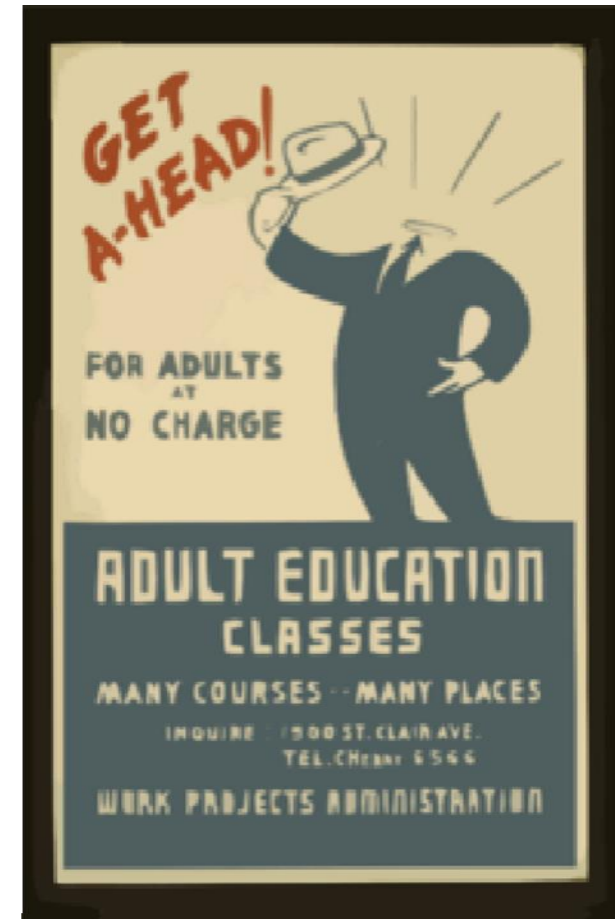






ADULT

LEARNING



THEORY

## Train the Trainer Session 2:

Adult

Learning

Theory

V1.1

BMRA Train the Trainer: Deconstruction Worker

By attending this session, participants will be able to:

1. Utilize the basic principles of adult learning and the strategies appropriate for teaching adults.
2. Implement strategies to create a comfortable learning environment.
3. Understand the impact of physical positioning, gestures, use of podiums, and tone of voice on receptivity of audience.
4. Utilize active listening and feedback techniques.

# Know Your Audience

V1.1

BMRA Train the Trainer: Deconstruction Worker

Adult learners comprise a wide range of participants.



It's critical to understand who your students are.

- ... Why are they in the class?
- ... What are their backgrounds?
- ... What barriers exist?
- ... What base knowledge levels do they have?

# Basic Principles

V1.1

BMRA Train the Trainer: Deconstruction Worker

1. Adults need to be involved in the planning and evaluation of their learning.
2. Adults need to know why they need to learn something.
3. Experience (including mistakes) provides the basis for learning activities.
4. Adults are most interested in learning subjects that have immediate relevance to their job or personal life.
5. Adult learning is problem-centered rather than content- centered.
6. Adults respond better to internal rather than external motivators.

(Knowles, 1990)

V1.1

- Adult-appropriate furniture and teaching space (no podium or desks in rows)
- Psychological safety created through respect and valuing learners' life experiences
- Active listening and feedback

- Position yourself as an equal not an "authority" figure.



©Building Materials Reuse Association, 2013, All Rights Reserved

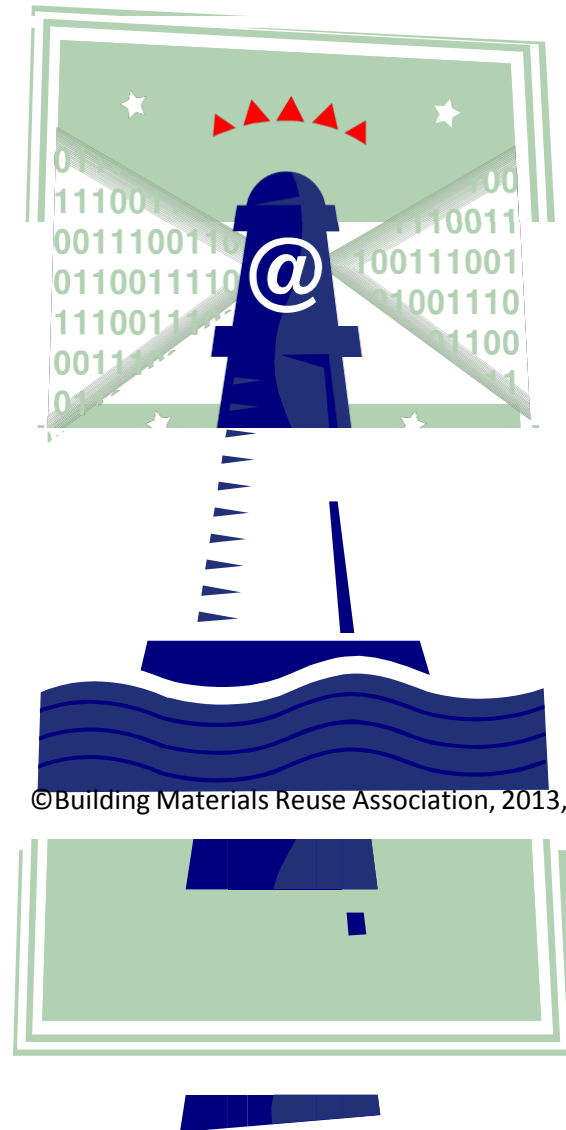


# Teacher/Trainer

V1.1

BMRA Train the Trainer: Deconstruction Worker

- ... Content Resource
- ... Facilitator
- ... Problem-poser
- ... Co-learner
- ... Guide



©Building Materials Reuse Association, 2013, All Rights Reserved

# Strategies

V1.1

BMRA Train the Trainer: Deconstruction Worker

## ... Use Experiential Activities

- + Case studies
- + Simulations
- + Role playing (sparingly)
- + Demonstrations
- + Action projects
- + Brainstorming
- + Frequent Quizzes
- + Collaborative Group Work
- + Presentations

## ... Use Graphic Organizers

- + K-W-L
- + Compare/Contrast Chart
- + Venn Diagrams
- + Concept maps and sketches

... Draw heavily on learners' previous experience.

... Explicitly explain how learning content will benefit the learner.

... Show respect through being organized and starting and ending on time.

... Open-ended questions



©Building Materials Reuse Association, 2013, All Rights Reserved

# Utilize and Stimulate the Senses

V1.1

BMRA Train the Trainer: Deconstruction Worker

Do you actively engage your students?

It is estimated that we learn:

10%	Of what we read.
20%	Of what we hear.
30%	Of what we see.
40%	Of what we see & hear.
70%	Of what we experience.
90%	Of what we teach.



# Accommodate Learning Styles

V1.1

BMRA Train the Trainer: Deconstruction Worker



Visual

Learners: "Show  
Me."

Visual/verbal  
Visual/nonverbal



Auditory/Verbal

Learners: "Tell  
me."



Tactile/Kinesthetic

Learners: "Let me do  
it."

# Active Listening

V1.1

BMRA Train the Trainer: Deconstruction Worker

- Stop other activities
  - Make and maintain eye contact
  - Lean slightly toward speaker
  - Nod to indicate understanding
  - Paraphrase what you heard
  - Ask clarification questions if you are unclear
- ... Through verbal and non-verbal cues, encourage speaker to extend answer
  - ... Allow speaker to finish without interruption

~~Lean slightly toward~~

©Building Materials Reuse Association, 2013, All Rights Reserved



# The Three R's

V1.1

BMRA Train the Trainer: Deconstruction Worker



.....

« Repeat

.....

« Respond

.....

« Reinforce

.....

# Know your goals

V1.1

BMRA Train the Trainer: Deconstruction Worker

How do your goals and the goals of the program

~~impact the delivery of the training?~~  
impact the delivery of the training?

- ... Is the primary goal employment?
- ... Is it passing the class or obtaining the credential?
- ... Is it skill and knowledge building?
- ... Is this a prerequisite to another course?

## Train the Trainer Session 2 Review:

Adult

## Learning

## Theory

V1.1

## BMRA Train the Trainer: Deconstruction Worker

- ... Reduce motivational barriers to learning.
- ... Recognize different learning styles (visual, auditory, and tactile) so that you can deliver effective training.
- ... Teachers facilitate learning, but it is the student's responsibility to do the learning.
- ... Recognize brings and respect the life experiences the student to the classroom.
- ... Effective classroom management assures that everyone has a fulfilling educational experience.
- ... Understand your audience and your goals.



## Train the Trainer Session 2 Review:

Close

V1.1

BMRA Train the Trainer: Deconstruction Worker



## References

V1.1

BMRA Train the Trainer: Deconstruction Worker

... Knowles, M.S. (1990) The Adult Learner: A  
neglected species (4<sup>th</sup> Ed.). Houston: Gulf Publishing.

Train the Trainer Day 1 Review:

Course Objectives

V1.1 BMRA Train the Trainer: Deconstruction Worker

By attending this training, participants will be able to:

- 1. Deliver the Deconstruction Worker Training (DWT) course content.
- 2. Prepare all facilities and materials for the DWT.
- 3. Incorporate adult learning principals into the DWT.
- 4. Modify DWT curriculum delivery to suit trainer style, student needs and training location.
- 5. Evaluate DWT participants and record results.




## **TRAIN THE TRAINER**

### **DECONSTRUCTION WORKER**

#### **HANDOUT: PRESENTATION**

V1.1 Train the Trainer: Deconstruction Worker



*Acknowledgment:* "This material is based upon work supported, in whole or in part, by the Department of Energy - Office of Energy Efficiency and Renewable Energy under Grant Award Number DE-EE0003564 from the Energy Efficiency and Conservation Block Grant Program made available pursuant to the American Recovery and Reinvestment Act (RECOVERY ACT) of 2009."

@Building

---

---

---

---

---


---

---

---

Welcome

V1.1 Train the Trainer: Deconstruction Worker



[www.BMRA.org](http://www.BMRA.org), [contact@bmra.org](mailto:contact@bmra.org),  
(773) 340-BMRA

---

---

---


---

---

---

---

---



COURSE OUTLINE

Winter 2013

---

---

---

---

---

---

---

---



Course Objectives

By attending this training, participants will be able to:

1. Deliver the Deconstruction Worker Training (DWT) course content.
2. Prepare all facilities and materials for the DWT.
3. Incorporate adult learning principals into the DWT.
4. Modify DWT curriculum delivery to suit trainer style, student needs and training location.
5. Evaluate DWT participants and record results.

©Building Materials Reuse Association, 2013, All Rights Reserved



TRAIN THE TRAINERS SESSION #1



DELIVERY OF COURSE	
CONTENT	

---

---

---

---

---

---

---

---



Train the Trainer Session 1:  
Delivery of Course Content

By attending this session, participants will be able to:

1. Understand the general core competencies to be delivered in the DWT.
2. Access the resources needed to prepare for delivery of course content.
3. Identify individual methods to be used to acquire knowledge needed for delivery of course content.
4. Begin developing an individual action plan for the course.

©Building Materials Reuse Association, 2013, All Rights Reserved

Core Competencies

$\frac{3}{4}$  The Core Competencies (CC) are groupings of skills, concepts and knowledge used by current deconstruction practitioners, identified by experienced industry experts, and required for workers in the deconstruction and building materials reuse industries.



©Building Materials Reuse Association, 2013, All Rights Reserved

Core Competencies

$\frac{3}{4}$  These CCs are found in the textbook:

$\frac{3}{4}$  *Introduction to Deconstruction: A Comprehensive  
Training Workbook*, by the Building Materials Reuse

Association (BMRA).

$\frac{3}{4}$  Refer to the content page and Introduction Page (iii)  
for a list and overview of the CCs.

$\frac{3}{4}$  Each of the chapters of the Text  
cover a CC, likewise the DWT will  
roughly follow the CCs and reference  
them throughout.

©Building Materials Reuse Association, 2013, All Rights Reserved

Deconstruction Worker CCs

$\frac{3}{4}$  Although there are 10 CCs, not all aspects of each CC will apply to the Deconstruction Worker Training.

$\frac{3}{4}$  Refer to "Deconstruction Worker Core Competencies" handout.

$\frac{3}{4}$  Using this handout and the Deconstruction Worker CC K-W-L worksheet let's get a better understanding of your knowledge levels.



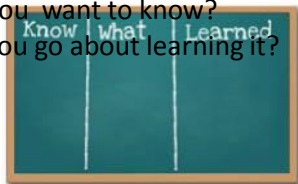
©Building Materials Reuse Association, 2013, All Rights Reserved

Learning the CCs

$\frac{3}{4}$  What do you know about each of the CCs?

$\frac{3}{4}$  What do you want to know?

$\frac{3}{4}$  How will you go about learning it?



©Building Materials Reuse Association, 2013, All Rights Reserved

Train the Trainer Session 1 Review:  
Delivery of Course Content

‰ Ten Core Competencies, with subsets specific to the  
Deconstruction Worker.

‰ Resources: Textbook, course  
materials, handouts, instructor,  
classroom, field and lab activities.


‰ Individual methods: Study, participation, practice.

‰ Develop an action plan.

©Building Materials Reuse Association, 2013, All Rights Reserved

Train the Trainer Session 1 Review:

Close



---

---

---

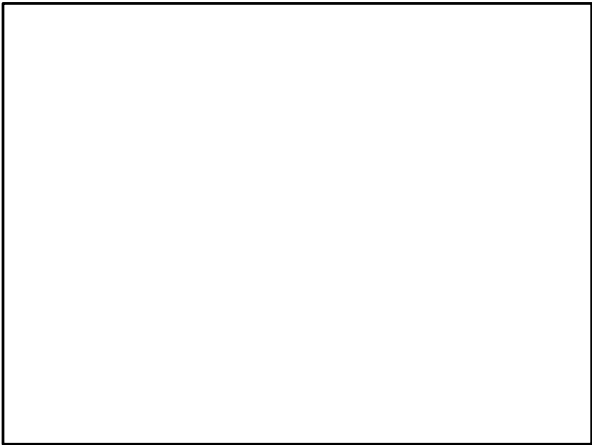
---

---

---

---

©Building Materials Reuse Association, 2013, All Rights Reserved



---

---

---

---

---

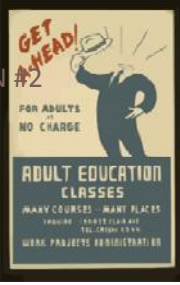
---

---

TRAIN THE TRAINER SESSION #2



what do you think?"



FOR ADULTS  
AT NO CHARGE

ADULT EDUCATION  
CLASSES

MANY COURSES - MANY PLACES  
TWO-HOUR - SEVEN-HOUR  
TWO-OR-THREE-DAY

WORK PROJECTS AVAILABLE

ADULT LEARNING THEORY

---

---

---

---

---

---

---



Train the Trainer Session 2:  
Adult Learning Theory

By attending this session, participants will be able to:

1. Utilize the basic principles of adult learning and the strategies appropriate for teaching adults.
2. Implement strategies to create a comfortable learning environment.
3. Understand the impact of physical positioning, gestures, use of podiums, and tone of voice on receptivity of audience.
4. Utilize active listening and feedback techniques.

©Building Materials Reuse Association, 2013, All Rights Reserved

Know Your Audience

Adult learners comprise a wide range of participants.  
It's critical to understand who your students are.

- ... Why are they in the class?
- ... What are their backgrounds?
- ... What barriers exist?
- ... What base knowledge levels do they have?

©Building Materials Reuse Association, 2013, All Rights Reserved

Basic Principles



1. Adults need to be involved in the planning and evaluation of their learning. \_\_\_\_\_
2. Adults need to know why they need to learn something. \_\_\_\_\_
3. Experience (including mistakes) provides the basis for learning activities. \_\_\_\_\_
4. Adults are most interested in learning subjects that have immediate relevance to their job or personal life. \_\_\_\_\_
5. Adult learning is problem-centered rather than content-centered. \_\_\_\_\_
6. Adults respond better to internal rather than external motivators. \_\_\_\_\_

(Knowles, 1990)

©Building Materials Reuse Association, 2013, All Rights Reserved

Creating a Comfortable Learning  
Environment

- Adult-appropriate furniture and teaching space (no podium or desks in rows)
- Position yourself as an equal not an “authority” figure.

- Psychological safety created through respect and valuing learners’ life experiences
- Active listening and feedback



©Building Materials Reuse Association, 2013, All Rights Reserved

Teacher/Trainer

- ... Content Resource
- ... Facilitator
- ... Problem-poser
- ... Co-learner
- ... Guide



©Building Materials Reuse Association, 2013, All Rights Reserved

## Strategies

... Draw heavily on learners' previous experience. Explicitly explain how learning content will benefit the learner.

... Use

Experiential Activities

+ Case studies

+ Simulations

+ Role playing (sparingly)

+ Demonstration s

+ Action projects

+ Brainstorming

+ Frequent Quizzes

+ Collaborative Group Work

+ Presentations

... Use Graphic Organizers

+ K-W-L

+ Compare/Contrast Chart

+ Venn Diagrams

+ Concept maps and sketches

... Show respect through being organized and starting and ending on time.

... Open-ended questions

~~©Building Materials Reuse Association, 2013, All Rights Reserved~~

Utilize and Stimulate the Senses

Do you actively engage your students?

It is estimated that we

10	Of what we read
20	Of what we hear
30	Of what we see
40	Of what we see &
70	Of what we
90	Of what we teach



©Building Materials Reuse Association, 2013, All Rights Reserved

---

---

---

---

---

---

Accommodate Learning Styles



Visual  
Learn

ers:

“Show  
Me.”



Auditory/  
Verbal  
Learn

ners:

“Tell  
me.”



Tactile/Ki  
nesthetic  
Learner

s: “Let

me do  
it.”

Visual/verbal  
Visual/n  
onverbal

©Building Materials Reuse Association, 2013, All Rights Reserved

---

---

---

---

---

---

Active Listening

- Stop other activities
- Make and maintain eye contact



---

- Lean slightly toward speaker

...

aker to extend answer

- ... Allow speaker to finish without interruption

---

---

---

- Nod to indicate understanding

T  
h  
r  
o  
u  
g  
h

- Paraphrase what you heard

v

- Ask clarification questions if you are unclear

e  
r  
b  
a  
l

a  
n  
d

n  
o  
n  
-

v  
e  
r  
b  
a  
l

c  
u  
e  
s  
,

e  
n  
c  
o  
u  
r  
a  
g  
e


s  
p  
e

---

©Building Materials Reuse Association, 2013, All Rights Reserved

---

The Three R's



Repeat

Respond

Reinforce

©Building Materials Reuse Association, 2013, All Rights Reserved

---

---

---

---

---

---

Know your goals

How do your goals and the goals of the program impact the delivery of the training?

- ... Is the primary goal employment?
- ... Is it passing the class or obtaining the credential?
- ... Is it skill and knowledge building?
- ... Is this a prerequisite to another course?

---

---

---

---

---

---

©Building Materials Reuse Association, 2013, All Rights Reserved

Train the Trainer Session 2 Review:  
Adult Learning Theory

- ... Reduce motivational barriers to learning.

---

---

- ... ferent learning styles (visual, auditory,  
and tactile) so that you can deliver  
effective training.
- R ... Teachers facilitate learning, but it  
e responsibility to do the learning  
c is the student's responsibility to do  
o the learning.
- g ... Recognize and respect the life  
n experiences the student brings  
i to the classroom.
- z ... Effective classroom management  
e assures that everyone has a fulfilling  
educational experience.
- d ... Understand your audience and your goals.  
i  
f

---

---

---

---

---

©Building Materials Reuse Association, 2013, All Rights Reserved



Train the Trainer Session 2 Review:

Close



©Building Materials Reuse Association, 2013, All Rights Reserved

---

---

---

---

---

---

References

... Knowles, M.S. (1990) The Adult Learner: A neglected species (4<sup>th</sup> Ed.). Houston: Gulf Publishing.

©Building Materials Reuse Association, 2013, All Rights Reserved

---

---

---

---

---

---

Train the Trainer Day 1 Review:

Course Objectives

By attending this training, participants will be able to:

1. Deliver the Deconstruction Worker Training (DWT) course content.
2. Prepare all facilities and materials for the DWT.
3. Incorporate adult learning principals into the DWT.

---

---

---

---

---

4. Modify DWT curriculum delivery to suit trainer style, student needs and training location.
5. Evaluate DWT participants and record results.

---

---

©Building Materials Reuse Association, 2013, All Rights Reserved





**TRAIN THE TRAINER**  
DECONSTRUCTION WORKER

HANDOUTS: GROUP 1

## DECONSTRUCTION WORKER TRAINING

## CORE COMPETENCIES

Competency One: Introduction to Deconstruction	
Learners will be able to:	
1.1	Define demolition and deconstruction and subsets thereof: Salvage, strip-out, and selective demolition.
1.2	Define building materials reuse, total and selective.
1.3	Define the goals of deconstruction and building material reuse.
1.4	Describe the social, environmental, and economic advantages to deconstruction and building material reuse.
1.5	Compare and contrast the methods of demolition and deconstruction and explain the advantages and disadvantages of each in particular situations.
1.6	Identify building materials and core components: determining material volumes, structural types, and appropriateness for demolition and deconstruction.
	<i>Exposure for cursory understanding</i>
1.7	Identify salvage and recycling opportunities in residential, commercial, and institutional buildings.
1.8	Identify building types and component systems.
1.9	List, in order, the basic steps in deconstructing a building.
1.10	List, in order, the basic steps to stripping out a building.
1.11	Define construction and demolition waste, recycling, reuse, source separation and mixed debris.
1.12	Identify reuse markets for materials generated on a deconstruction project.
	<i>Exposure for cursory understanding</i>

Competency Two: Evaluating the Building Site	
Learners will be able to:	
2.1	Describe the purpose of conducting a building site evaluation.
2.2	List and describe the primary goals which a building site evaluation should achieve.
2.3	Identify common structural components in a building by type.
2.4	Locate load bearing partitions in a building.
2.5	Conduct an exploratory investigation to identify building layers (e.g. roofing, partition finishes, flooring, etc.) and material types.
2.6	Identify a building's Mechanical, Electrical, Plumbing systems, their shut offs and the associated principles of operation for each type of system.
2.7	Understand how building age may impact deconstruction project.
2.8	Identify some of the structural hazards that might exist in a candidate building and solutions to minimize risk of structural failure while being deconstructed.
2.9	Identify potential material egress routes and material staging, processing, and loading areas on a

	project.
2.10	Identify the major components in a contract agreement. <i>Exposure for cursory understanding</i>
2.11	Locate permitted waste recycling markets on state, county, and regional waste district web pages. <i>Exposure for cursory understanding</i>
2.13	Locate reuse markets and identify their acceptance guidelines. <i>Exposure for cursory understanding</i>
2.14	Describe “salvage potential” and the factors to be considered in determining a building’s value.

<b>Competency Three: Jobsite Safety</b>	
Learners will be able to:	
3.1	Describe the all key safety concepts as they apply to a deconstruction site or project.
3.2	Identify and describe safety hazards that might be found on a deconstruction job site.
3.3	Describe the roles of planning, supervision, and teamwork in ensuring a safe deconstruction job site.
3.4	Identify and describe the roles of major federal regulating agencies (including OSHA and EPA) in governing safety practice for building deconstruction.
3.5	Describe the typical roles of state and local agencies, such as regional Clean Air Agencies, state Departments of Environmental Protection or local public utilities.
3.6	Demonstrate understanding, fitting and use of various types of Personal Protection Equipment (PPE) used on deconstruction projects.
3.7	Describe safety procedures applicable to non-structural salvage.

<b>Competency Four: Hazardous Materials</b>	
Learners will be able to:	
4.1	List and describe 12 types of chemical hazards that may be encountered on a deconstruction project.
4.2	Summarize OSHA safety requirements for working around asbestos-containing materials (ACM).
4.3	Summarize EPA requirements for handling and disposal of ACM.
4.4	Describe appropriate methods for recognizing and handling lead-based paint containing materials on a deconstruction job site.
4.5	Describe the basic requirements of the EPA Renovation, Repair, and Painting Rule and explain when it applies to a deconstruction job site.
4.6	List 3 products found in buildings that may contain mercury and describe how to handle them.
4.7	Describe hazards associated with pressure-treated (PT) wood and how to minimize those on a deconstruction job site.
4.8	List 3 products found in buildings that may contain polychlorinated biphenyls (PCBs) and describe how to handle them.
4.9	Describe an appropriate response for a worker who comes upon evidence for clandestine drug

	operations.
4.10	Define “universal wastes,” list examples and describe how they should be handled when encountered on a deconstruction job site.
4.11	Describe typical safety measures for working with moldy materials.
4.12	Describe worker procedures to minimize exposure to silica on a deconstruction job site.

<b>Competency Five: Tools for Deconstruction and Building Material Salvage</b>	
Learners will be able to:	
5.1	Define what a tool is in the context of salvage and deconstruction and articulate the hallmarks which make a tool valuable.
5.2	Identify and describe appropriate uses of typical hand tools in salvage and deconstruction activities.
5.3	Identify and describe appropriate use of typical power tools in salvage and deconstruction activities.
5.4	Demonstrate the use of the most common tools used in salvage and deconstruction.
5.5	Explain how the scale of a project affects the choice of tools for that project.

<b>Competency Six: Site Plan, Schedule, and Work Plan</b>	
Learners will be able to:	
6.1	Follow a site safety plan including the identification of hazards overhead, underfoot, and in the way and how to best protect from these potential hazards.
6.2	Describe how to secure a job site.
6.3	Describe how to plan for and protect from weather and natural elements including rain, snow/ice, cold, heat, and rain.
6.4	Identify utility shut offs/disconnects, turn them off, and lock them out or contract to have them disconnected by service providers.
	<i>Exposure for cursory understanding</i>

<b>Competency Seven: Nonstructural Salvage</b>	
Learners will be able to:	
7.1	Explain how non-structural salvage fits into a deconstruction project.
7.2	Explain considerations for stand-alone non-structural salvage projects (no deconstruction).
7.3	Describe factors influencing the order in which items are salvage.
7.4	List and describe, in order, the steps in safely removing carpet.
7.5	List and describe, in order the steps in safely removing appliances.
7.6	List and describe, in order, the steps in safely removing countertops and cabinets.
7.7	List and describe, in order, the steps in safely removing finished wood flooring.
7.8	List and describe, in order, the steps in safely removing windows.
7.9	List and describe, in order, the steps in safely removing doors.
7.10	List and describe, in order, the steps in safely removing sinks, tubs, toilets, and other plumbing



	items.
7.11	List and describe, in order, the steps in safely removing light fixtures.
7.12	Explain the importance of reevaluating materials for reuse potential during and after removal.

<b>Competency Eight: Full Deconstruction</b>	
Learners will be able to:	
8.1	Describe the basic steps in sequencing work for full deconstruction and identify potential variations in this order based on the type of building encountered.
8.2	Describe factors to consider before work starts.
8.3	Distinguish between a load bearing and non-load bearing wall.
8.4	Describe steps in roof deconstruction.
8.5	Describe steps in wall deconstruction.
8.6	Describe steps in floor deconstruction.
8.7	Describe steps in getting lumber ready for shipment.

<b>Competency Nine: Materials Management</b>	
Learners will be able to:	
9.1	Demonstrate knowledge of locating local waste haulers, recyclers, and reuse centers. <i>Exposure for cursory understanding</i>
9.2	Describe how C&D reuse/recycling infrastructure influences choices about material handling and disposition. <i>Exposure for cursory understanding</i>
9.3	Demonstrate knowledge in estimating materials recovery from a salvage or deconstruction project. <i>Exposure for cursory understanding</i>
9.4	Describe how efficiency can be achieved in moving, storing, loading, and transporting of recovered materials.
9.5	Identify commonly salvaged materials and components and describe how to handle them to retain maximum value.
9.6	Describe the process for removal, handling, storage/stacking, and loading/transport of: *Wood flooring *Cabinets *Doors *Windows *Lighting fixtures *Appliances *Siding materials *Roofing *Structural lumber *Brick
9.7	Identify commonly recycled building materials and describe how to sort and handle these

	materials.
--	------------

Competency Ten: Job Closeout	
Learners will be able to:	
10.1	List the basic closeout requirements required for all deconstruction jobs.
10.2	Identify project specific closeout requirements and where to find them.
	<i>Exposure for cursory understanding</i>
10.3	Define a “clean” post project job site.
10.4	Explain project reporting data, types and quantities of data tracked and how it is reported.
10.5	Conduct an end of project tool inventory.
10.6	List the OSHA regulations associated with protecting or grading open cellar holes.

## TRAIN THE TRAINER: DECONSTRUCTION WORKER

### CORE COMPETENCY (CC) K-W-L

CC#	What I Already <b>Know</b> About The CC	What I <b>Want</b> To Learn About The CC	What I <b>Learned</b> About The CCs From This
1			
2			
3			
4			
5			

CC#	What I Already <i><b>Know</b></i> About The CC	What I <i><b>Want</b></i> To Learn About The CC	What I <i><b>Learned</b></i> About The CCs From This
6			
7			
8			
9			
10			

## What's Your Learning Style?

By Marcia L. Conner

Learning style refers to the ways you prefer to approach new information. Each of us learns and processes information in our own special style, although we share some learning patterns, preferences, and approaches. Knowing your own style also can help you to realize that other people may approach the same situation in a different way from your own.

Take a few minutes to complete the following questionnaire to assess your preferred learning style. Begin by reading the words in the left-hand column. Of the three responses to the right, circle the one that best characterizes you, answering as honestly as possible with the description that applies to you right now. Count the number of circled items and write your total at the bottom of each column. The questions you prefer provide insight into how you learn.

1. When I try to concentrate...	I grow distracted by clutter or movement, and I notice things around me other people don't notice	I get distracted by sounds, and I attempt to control the amount and type of noise around me	I become distracted by commotion, and I tend to retreat inside myself.
2. When I visualize...	I see vivid, detailed pictures in my thoughts.	I think in voices and sounds.	I see images in my thoughts that involve movement.
3. When I communicate with others...	I find it difficult to listen for very long.	I enjoy listening, or I get impatient to talk myself.	I gesture and communicate with my hands.
4. When I contact people...	I prefer face-to-face meetings.	I prefer speaking by telephone for serious conversations	I prefer to interact while walking or participating in some activity
5. When I see	I forget names but remember faces, and I tend to replay where we met for	I know people's names and I can usually quote what we discussed	I remember what we did together and I may almost "feel" our time together
6. When I	I watch TV, see a play, visit an exhibit, or go to a movie	I listen to the radio, play music, read, or talk with a friend	I play sports, make crafts, or build something with my hands
7. When I	I like descriptive examples and I may pause to imagine the	I enjoy the narrative most and I can almost "hear" the characters talk	I prefer action-oriented stories, but I do not often read for
8. When I	I envision the word in my mind or imagine what the word looks like when	I sound out the word, sometimes aloud, and tend to recall rules about	I get a feel for the word by writing it out or pretending to type it.
9. When I	I seek out demonstrations, pictures, or diagrams.	I want verbal and written instructions, and to talk it over with someone else.	I jump right in to try it, keep trying, and try different approaches.

10. When I assemble an object...	I look at the picture first and then, maybe, read the directions	I read the directions, or I talk aloud as I work.	I usually ignore the directions and figure it out as I go along
11. When I interpret someone's	I examine facial expressions.	I rely on listening to tone of voice.	I focus on body language.
12. When I teach other	I show them.	I tell them, write it out, or I ask them a series of questions.	I demonstrate how it is done and then ask them to try.
Total	Visual: _____	Auditory: _____	Tactile/Kinesthetic: _____

The column with the highest total represents your primary processing style. The column with the second-most choices is your secondary style.

Your primary learning style: \_\_\_\_\_

Your secondary learning style: \_\_\_\_\_

Now that you know which learning style you rely on, you can boost your learning potential when working to learn more. For instance, the following suggestions can help you get more from reading a book.

If your primary learning style is **visual**, draw pictures in the margins, look at the graphics, and read the text that explains the graphics. Envision the topic or play a movie in your thoughts of how you'll act out the subject matter.

If your primary learning style is **auditory**, listen to the words you read. Try to develop an internal conversation between you and the text. Don't be embarrassed to read aloud or talk through the information.

If your primary learning style is **tactile/kinesthetic**, use a pencil or highlighter pen to mark passages that are meaningful to you. Take notes, transferring the information you learn to the margins of the book, into your journal, or onto a computer. Doodle whatever comes to mind as you read. Hold the book in your hands instead of placing it on a table. Walk around as you read. Feel the words and ideas. Get busy—both mentally and physically.

**More information on each style, along with suggestions on how to maximize your learning potential, is available in the book *Learn More Now* (Hoboken, NJ; John Wiley & Sons, 2004).**

---

A previous version of this assessment was published in *Learn More Now: 10 Simple Steps to Learning Better, Smarter, and Faster* (Hoboken, NJ; John Wiley & Sons, March 2004). Learn about the book and read an excerpt at <http://www.marciaconner.com/learnmorenow/>. Join the Ageless Learner mailing list to receive information about issues related to assessments and learning across the lifespan at <http://www.agelesslearner.com/joinus.html>.

If you are interested in reproducing this assessment for personal or organizational uses, please abide by the following terms of use. This content may be distributed freely without the author's permission provided that 1) the content, contact, and copyright notice remain intact, 2) the URL to the online version appears on every page, 3) you do not charge any fee for its use, 4) you send a note about how, where, and when the content will be used to [copyright@agelesslearner.com](mailto:copyright@agelesslearner.com) for tracking purposes. If you're interested in using the materials in a commercial or for-fee product, or on a web page, contact the author first to learn about additional guidelines.

MLC011008

**TRAIN THE TRAINER**  
DECONSTRUCTION WORKER

HANDOUTS: GROUP 2



## TRAIN THE TRAINER: DECONSTRUCTION WORKER

### CLASSROOM SUPPLIES AND FACILITIES

#### Participant Classroom Supply Requirements and Recommendations

##### **EACH PARTICIPANT\***

- ... Text book, *Introduction to Deconstruction: A Comprehensive Training Workbook*, BMRA
- ... Curriculum, handouts, agendas, etc.
- ... Three ring binder, 2" minimum
- ... Loose-leaf ruled paper or notebooks, three-hole punched
- ... Loose-leaf graph paper or notebooks, three-hole punched
- ... Highlighter (qty. 2)
- ... Ballpoint pen (qty. 2)
- ... Calculator (basic solar)
- ... Pencil pouch for binder (over the course of a program, including the pencil pouch saves considerably on replacement of calculators, pens, pencils and highlighters – available at many dollar stores for \$1.00ea)
- ... Name tents
- ... Other support materials as required



*\* Whenever possible, all of the supplies in this category should be ready and available on or before the first day of class, laid out and organized for each participant.*

##### **GENERAL USE (disposable)**

- ... Index Cards
- ... Sticky notes
- ... Poster-size table-top/easel pads
- ... Markers
- ... Paper Clips, alligator clips
- ... Staples
- ... Dry-Erase Markers
- ... Coffee, sugar, creamer
- ... Water (water cooler, water fountain, tap, bottled)
- ... Other general office supplies

##### **GENERAL USE (durable)**

- ... Coffee Maker

- ... Coffee Mugs and water cups (disposable if wash sink is unavailable)
- ... Printer/Copier/Scanner
- ... Digital Camera, Video Camera
- ... Pencil Sharpener
- ... Stapler/staple remover
- ... Three hole punch
- ... Scissors
- ... Ruler
- ... Push Pins
- ... Clip Board(s)
- ... Easel(s)
- ... Bell
- ... Flash Drive
- ... Other general durable supplies

### **Classroom Facility Requirements and Recommendations**

- ... Seating and work-surface (desk/table) for each participant with ample room for active participation in classroom activities
  - x Flexible space preferred (ability to rearrange desks and chairs to suit activities and groups)
- ... Comfortable, well lit, quiet, clean, and safe learning environment with good acoustics and functional layout
  - x Environmental controls are preferred, such as the ability to dim overhead lights at the projection screen while maintaining light levels in the rest of the classroom; windows that allow in natural light but have operable shades; basic temperature controls, etc.
- ... Ample white board, chalkboard, “smart” board, large paper pad, or other displayed writing surface space with sufficient supply of corresponding writing utensils (i.e. dry-erase markers)
  - x Multiple white boards, including mobile white boards preferred
- ... Overhead projector of sufficient brightness and clarity with remote control and appropriately sized projection screen
  - x Full AV capability (i.e. speakers)
- ... Instructor work-surface/podium or table that allows instructor to view computer screen while participants view projection screen
  - x This surface is ideally at standing height or is adjustable between sitting and standing
  - x Dedicated instructor layout space for materials and props
- ... Internet access, preferable wireless
- ... Availability of computer lab for participants with internet access and word processing software

- x Laptop cabinet with a unit available for use by each participant at the instructors discretion
- x **Not** desktop computers in the same classroom that is being used for general instruction
- ... Proximal restroom, break-room and other facilities to quickly accommodate participant needs
  - x Microwave, refrigerator, dishes and utensils (disposable if wash sink is unavailable)
  - x Access to snacks and refreshments (provide if budget permits)
  - x Lunch tables and seating, ideally separate from classroom space (picnic table is a good carpentry project)
- ... Wall mounted clock, trash receptacle, recycling bin, tack board, etc.
- ... Other basic classroom and training center amenities

### **Other Requirements and/or Recommendations**

- ... Lab space equipped with tools, props and equipment for hands-on activities, tool sign offs, demonstrations, testing, etc.
  - x Ideally, this space will be adjacent to or within the same facility as the classroom space
  - x Alternatively, or additionally, a training project may be used. This location would ideally be located relatively near the training facility

#### ***See criteria for lab space, props, equipment and training project for additional information***

- ... Transportation for field trips and field activities
- ... Time cards or swipe cards for attendance tracking and job readiness (sign-in sheets will suffice, but do not have the same impact)
- ... Lockers or other semi-secured personal space for participants (good carpentry training project)
  - x If lockers are unavailable, consider dedicated desk space for items to remain overnight
- ... Uniform and/or durable clothing, i.e. matching branded, long-sleeve jersey polo
  - x Opportunity to brand program and foster unity and teamwork
  - x Clothing for classroom has different requirements than clothing needed for lab or field activities (see field supply requirements)
- ... Reference library with books, magazines, manuals and other publications relevant to the fields of deconstruction, construction, demolition, waste, recycling, reuse, worker safety, jobsite hazards, etc.
- ... Samples library of deconstruction materials, tools, products, etc.



RG

## TRAIN THE TRAINER: DECONSTRUCTION WORKER

### TOOLS AND EQUIPMENT: LAB AND FIELD COMPONENT

#### **Personal Protective Equipment (PPE)**

Refer to Text Book CC3 for more information on PPE

#### **EACH PARTICIPANT PPE**

- ... Hard hat
- ... Safety glasses (standard, over glasses fit, or prescription as needed)
- ... Hearing protection (disposable ear plugs provided daily or individual ear muffs)
- ... Dust mask and/or respirators (disposable provided daily or individual respirators)
  - o For lead: HEPA respirator (P100 NIOSH rating) or Disposable P100 filtering facepiece.
  - o For normal dust and respiratory protection: Respirator or disposable NIOSH N95
  - o See CC3, page 3-21 to 3-24 for more information
- ... Safety vest, high visibility
- ... Work gloves (semi-disposable coated gloves or durable individual pairs)
- ... Disposable coveralls (i.e. Tyvec Suits) (as needed, and primarily for lead safe work)
- ... Steel toed boots (steel insoles also recommended)
- ... Durable outerwear (i.e. jeans and long sleeve work shirt)

#### **RECOMMENDED/OPTIONAL EACH PARTICIPANT PPE**

- ... Back brace
- ... Knee Pads
- ... Rain protection
- ... Other weather protection as needed (i.e. cold weather attire)

#### **TRAINING CENTER PPE (SETS/QUANTITIES AS NEEDED)**

- ... Safety Harness / Fall Protection (fall arrest harness, lanyard and anchor)
- ... First Aid Kit
- ... Eye Wash
- ... Fire extinguisher(s)
- ... Fencing
- ... Drinking water and cups
- ... Propane heater
- ... Lock-out kits
- ... Debris chutes (manufactured or site built)
- ... Hepa Vac

### **Participant Tools and Equipment Requirements and Recommendations**

Refer to Text Book CC5 for more information on tools and equipment

#### **EACH PARTICIPANT TOOLS**

- ... Tool Bag/Bucket
- ... Tool Belt
- ... Utility Knife
- ... Tape Measure
- ... Pencil, Crayon, Marker
- ... Flashlight or Headlamp (LED)
- ... Hammer (claw)
- ... Flat Bar
- ... 5 in 1 tool
- ... Nail Puller/Nipper or other general pliers
- ... Nail set/punch
- ... Screwdriver set or multi function sets (i.e. 4 in 1, ratcheting with interchangeable tips)

#### **TRAINING CENTER TOOLS (HAND TOOLS)**

- ... Assortment of hammers, mallets and sledges, qty. as needed
  - o Claw hammers in variety of weights and lengths
  - o Sledge hammers in variety of weights and lengths
  - o Specialty hammers, i.e. masonry
  - o Mallets, i.e. rubber, plastic, wood
- ... Assortment of prybars, flatbars and crowbars, qty. as needed
  - o Flatbars in a variety of lengths and styles (the longer the better)
  - o Prybars and crowbars in a variety of lengths and styles
  - o Specialty, i.e. cat's paw, pike poles, demo bars
- ... Assortment of handsaws, qty. as needed
  - o Standard hand saw / contractors saw
  - o Japanese hand saw
  - o Hacksaw
  - o Bow saw
- ... Assortment of shovels, rakes and brooms and clean-up tools, qty. as needed
  - o Various shovels for scooping up material and debris
  - o Roofing shovels and other shovels used for material removal
  - o Push brooms and sweeping brooms for dust and light debris
  - o Rakes and other clean-up tools
- ... Assortment of chisels, qty. as needed
  - o Wood chisels in various sizes

- o Masonry chisels in various sizes
- ... Assortment of pliers and wrenches
  - o Standard and adjustable pliers in a variety of sizes and styles
  - o Needle-nose and other specialty pliers
  - o Locking and gripping pliers in a variety of sizes and styles
  - o Standard and adjustable wrenches in a variety of styles and sizes
- ... Screwdriver set
- ... Socket wrench set
- ... Bolt cutter
- ... Snips
- ... Wire cutter
- ... Shims and wedges

#### **TRAINING CENTER TOOLS (POWER TOOLS AND PNEUMATIC TOOLS)**

- ... Reciprocating saws with a variety of blades (corded preferred, cordless too if budget permits)
- ... Circular saws with nail biting blades (worm drive preferable)
- ... Chain Saw(s) (recue saw and carbide blades preferred)
- ... Angle Grinder/Cut-off tools with a variety of cut-off and grinding wheels
- ... Pneumatic nail remover, i.e. Nail Kicker
- ... Drill drivers (corded and cordless) with bit sets
- ... Impact drill drivers with bit sets
- ... Hammers drills, demolition hammers and/or power chisels (budget permitting)
- ... Mini-router and/or oscillating multi-tool
- ... Table saw (budget permitting)
- ... Chop saw / Miter Saw (budget permitting)
- ... Shop Vac

#### **SITE SPECIFIC TOOLS AND EQUIPMENT**

- ... Generator
- ... Compressor
- ... Job box/gang box
- ... Cutting torch and tank
- ... String lights / site lighting
- ... Saw horses (great carpentry project)
- ... Assortment of ladders, i.e., telescoping, extension, folding, step
- ... Extension cords
- ... Locks and chains

## **MATERIAL HANDLING TOOLS AND EQUIPMENT**

- ... Pallets
- ... Shrink wrap
- ... Banding cart
- ... Ratcheting straps
- ... Rope and other straps
- ... Carts, dollies and hand trucks
- ... Wheelbarrows
- ... Pallet jack
- ... Trash cans

## **MATERIAL MOVING AND PERSONELL TRANSPORTATION EQUIPMENT**

- ... Forklift
- ... Telescoping fork lift, crane or boom
- ... Box truck
- ... Flatbed/Stake truck
- ... Tools and participant transportation vehicle(s), i.e. van, pickup truck, bus
- ... Excavator

## **SITE SERVICES / RENTAL**

- ... Porta-John
- ... Wash Station
- ... Scaffolding
- ... Dumpster (if needed)

## **OTHER TOOLS AND CONSIDERATION (SEE CC5 FOR MORE INFORMATION**

- ... Electrical tools
- ... Plumbing tools

## **DISPOSABLE SUPPLIES NOT NOTED ABOVE**

- ... Trash bags
- ... Poly sheeting
- ... Various blades
- ... Gas for generator
- ... Other as needed

## TRAIN THE TRAINER: DECONSTRUCTION WORKER

### IDEAL FIELD HOUSE TRAINING CANDIDATE

Every deconstruction project is different and housing stock varies considerably around the country, and although almost any field site could be used effectively for training, and would be better than having none, below is a list of characteristics and circumstances that would be *ideal* in a training house.

- ... Single family detached residential structure
  - o Detached garage or no garage preferred
- ... Adjacent vacant lot or open space on lot
- ... Accessible lot for equipment and trucking
- ... Building size ranging from 1400 to 2400SF
- ... Open space and floor plan to the extent possible in a small house
  - o Large enough rooms to allow for training group size
  - o Trainees will be divided into groups to accommodate any constraints
- ... Older construction, circa 1920
- ... Wood framed, platform construction is ideal, but balloon is perfectly acceptable
- ... Full basement, assuming excavation and backfill costs are covered, otherwise pier and post
- ... Standing height, floored attic space
- ... Hardwood floors
- ... Exterior ideally would be one layer of unpainted siding
  - o Preferably not brick (unless partial deconstruction is acceptable, or removal can be outsourced as a potential source of revenue)
  - o Preferably no asbestos (unless previously abated)
- ... Structurally sound or able to easily be braced to safely accommodate training needs
- ... No major additions or major structural modification detected
- ... More simple construction styles are preferred
  - o For example, Colonial or Bungalow as opposed to Gothic or Victorian
- ... Little or no fire damage
- ... Little or no water damage
- ... Little or no active mold present
- ... Little or no indication of pest or pet damage
- ... Limited other hazards and/or hazards removed prior to training (excluding lead)
  - o Asbestos abatement already performed
  - o Lead hazard will be assumed in painted materials
- ... All clearances, titles, permitting and shut-offs complete or readily able to be completed
- ... All required insurances and budget consideration resolved and in place



- ... Relatively close to the training center
- ... Relatively close to a hardware store
- ... Professional Deconstruction or Demolition partner in place to complete project after training, or opportunity for extended training (budget permitting)

RG

**TRAIN THE TRAINER: DECONSTRUCTION WORKER****OTHER TRAINING PROGRAM CONSIDERATIONS**

## ... Support services and other work skills support considerations

- x General case management
  - f Food
  - f Housing
  - f Transportation
  - f Day care
  - f Adult basic education
  - f Clothing (basic, job and interview)
  - f Reading glasses
- x Contextualized math and math tutoring
- x Communication and contextualized reading
- x Professional work skills
  - f Interviewing
  - f Resumes
  - f Employability skills
- x Customer service
- x Financial literacy
- x Job placement

## ... Pre-Screening Considerations

- x Physical Exam
- x Career based physical exam and body mechanics
- x Drug Screen
- x Background checks
- x TABE and/or Work Keys testing
- x Industry Pre-Test / Post-Test

## ... Prerequisite Considerations

- x OSHA 10 Hour Construction
- x First Aid, CPR, AED
- x EPA Lead RRP
- x Asbestos Awareness (Class IV)

## ... Other Certification Considerations

- x HAZWOPER
- x Asbestos Worker or Supervisor

- x Lead Worker or Supervisor
- x Fork Lift Operator
- x Truck Driver
- ... Employer advisory council
- ... Open computer lab time
- ... Open shop and field time
- ... Open Study Sessions
- ... Opportunities for internship, volunteer, or paid work experience
- ... Practice Test Sessions



## **DECONSTRUCTION WORKER TRAINING**

DAY 1: SESSION 1

BMRA Standardized Curriculum V1.1 02/15/13



---

*Acknowledgment:* "This material is based upon work supported, in whole or in part, by the Department of Energy - Office of Energy Efficiency and Renewable Energy under Grant Award Number DE-EE0003564 from the Energy Efficiency and Conservation Block Grant Program made available pursuant to the American Recovery and Reinvestment Act (RECOVERY ACT) of 2009."

## DECONSTRUCTION WORKER TRAINING

### COURSE SYLLABUS

Enter Organization Name

<b>Dates:</b>	Select Start Date to Select End Date	<b>Instructor:</b>	Enter Instructor Name
<b>Time:</b>	Enter start and end time	<b>E-mail:</b>	Enter contact email
<b>Location:</b>	Enter course location(s)	<b>Phone:</b>	Enter contact phone #

#### REQUIRED TEXTS/MATERIALS:

Deconstruction Worker Training Course Materials

*Introduction to Deconstruction: A Comprehensive Training Workbook* (2012), by Building Materials Reuse Association

#### COURSE WEBSITES:

Enter course website, or type NA

#### COURSE PREREQUISITES:

OSHA 10 hour Construction (minimum)  
Asbestos Awareness (Class IV) (minimum) EPA  
Lead RRP  
First Aid, CPR, AED  
HAZWOPER

#### COURSE DESCRIPTION:

The Deconstruction Worker Training (DWT) course is an introductory course in deconstruction. Successful completion of this course will prepare learners for the competency based credentialing exam. Passing the exam will demonstrate content knowledge and necessary skills to qualify learners as deconstruction workforce ready.

This course is designed as an 80 hour course conducted 8 hours per day for duration of 10 days. The 8 daily hours of instruction will include both classroom and in-field/experiential instruction.

The course format arranges the material into the following 10 competencies:

- Introduction to deconstruction, evaluating the building site, job site safety, hazardous materials, tools, site and work plans, non-structural salvage, full deconstruction, materials management, and job closeout.

While some competencies will require more instructional time than others, one competency will be covered per day on average.

## COURSE OBJECTIVES:

By attending this training, participants will be able to:

1. Demonstrate an understanding of salvage and deconstruction practices, buildings, and building materials.
2. Describe the process of evaluating a building deconstruction site.
3. Follow safety measures applicable to building deconstruction and building material salvage activities.
4. Identify environmental hazards associated with deconstruction and building material salvage activities.
5. Identify types and demonstrate use of tools applicable to deconstruction and building material salvage activities.
6. Understand a site plan and schedule for building deconstruction.
7. Describe and/or demonstrate steps and processes involved in nonstructural salvage.
8. Describe and/or demonstrate steps and processes involved in full deconstruction.
9. Understand basic materials management principals applicable to deconstruction and building material salvage activities.
10. Follow steps as assigned to facilitate closing out a building deconstruction project.

## COURSE ACTIVITIES:

- Reading:  
Reading relevant sections of the textbook, prior to presentation in class, will better prepare the learner for meaningful discussion and important questions. Participants are expected to complete any reading assignments as assigned by the instructor.
- Discussion:  
Active participation in discussion is crucial to content mastery and critical thought, both necessary for successful course completion and preparation for the workforce.
- Hands-on/experiential activities:  
In addition to classroom presentation, activities, and discussion, learners will participate in simulations, case study, research, and in-field exercises. These hands-on activities are essential to learner practice and understanding of deconstruction. Learners are expected to dress appropriately and as recommended by the instructor to safely participate in all activities. Learners must wear appropriate personal protective equipment at all times, and as directed by the instructor and/or site safety officer.
- Competency Verification:  
A quiz or skills assessment will follow instruction on each competency. Competency will be demonstrated at 75%.

## EVALUATION:

Successful completion of course, quizzes, skills assessments and all classroom activities with an average grade greater than 75%, as well as meeting attendance and participation criteria is required to pass the course and participate in credential exams.

In addition to prerequisites and work experience, passing of Deconstruction Worker Training certification exams (written and field) are required to obtain certification.

## SCHEDULE:

*Note: Schedule is subject to change at instructor's discretion.*

Session # (4hrs ea)	Location(s)	CC and/or	Methods &	Date & Time
<b>Deconstruction Worker</b>				
<b>Session 01</b> DWT: Overview DWT: Pre-Testing	Classroom Facility tour	<ul style="list-style-type: none"> <li>Course Overview</li> <li>DWT Pre-Test</li> </ul>	PP's, Handouts, Group Activities, Discussion,	Click here to enter a date. 08:00 am to 12:00 pm
<b>Session 02</b> DWT: CC1	Classroom	<ul style="list-style-type: none"> <li>CC1: Introduction to</li> </ul>	PP's, Handouts, Group Activities.	Click here to enter a date. 12:30 pm to 04:30 pm
<b>Session 03</b> DWT: CC1	Classroom	<ul style="list-style-type: none"> <li>CC1: Review</li> <li>CC1: Quiz</li> </ul>	PP's, Course Materials, Group Discussion,	Click here to enter a date. 08:00 am to 12:00 pm
<b>Session 04</b> DWT: CC2	Classroom Field Site Lab	<ul style="list-style-type: none"> <li>CC2: Evaluating the Building Site</li> </ul>	PP's, Handouts, Group Activities, Discussion, and	Click here to enter a date. 12:30 pm to 04:30 pm
<b>Session 05</b> DWT: CC2	Classroom	<ul style="list-style-type: none"> <li>CC2: Review</li> <li>CC2: Quiz</li> </ul>	PP's, Course Materials, Group	Click here to enter a date. 08:00 am to 12:00 pm
<b>Session 06</b> DWT: CC3	Classroom	<ul style="list-style-type: none"> <li>CC3: Jobsite Safety</li> </ul>	PP's, Handouts, Group Activities, and	Click here to enter a date. 12:30 pm to 04:30 pm
<b>Session 07</b> DWT: CC4	Classroom	<ul style="list-style-type: none"> <li>CC4: Hazardous Materials</li> </ul>	PP's, Course Materials, Group Discussion	Click here to enter a date. 08:00 am to 12:00 pm
<b>Session 08</b> DWT: CC1-4 Review DWT: Retail Field Trin	Classroom Building Material Retail Establishment	<ul style="list-style-type: none"> <li>CC1-CC4: Quiz Review</li> <li>Building</li> </ul>	PP's, Course Materials, Handouts, Group	Click here to enter a date. 12:30 pm to 04:30 pm
<b>Session 09</b> DWT: CC5	Lab	<ul style="list-style-type: none"> <li>CC5: Tools for Deconstruction and Building</li> </ul>	Demonstration, Hands-On Exercises, and Skills	Click here to enter a date. 08:00 am to 12:00 pm
<b>Session 10</b> DWT: CC5 DWT: CC6 DWT: CC8	Lab Field Site	<ul style="list-style-type: none"> <li>CC5: Skills Verification cont.</li> <li>CC6: Site Plan,</li> </ul>	Hands-on Activities and Skills Verification, Handouts, Group	Click here to enter a date. 12:30 pm to 04:30 pm

Session # (4hrs ea)	Location(s)	CC and/or DWT	Methods &	Date & Time
<b>Session 11</b> DWT: CC6 DWT: CC7	Classroom Field and/or Lab	<ul style="list-style-type: none"> <li>CC6: Site Plan, Schedule &amp; Work Plan</li> </ul>	PP's, Course Materials, Handouts, Group	Click here to enter a date. 08:00 am to 12:00 pm
<b>Session 12</b> DWT: CC6-CC9 DWT: Basic Carpentry	Lab Field Site	<ul style="list-style-type: none"> <li>CC6-CC9: Hands-on Activities</li> </ul>	Hands-on activities and Skills Verification, Handouts, Group	Click here to enter a date. 12:30 pm to 04:30 pm
<b>Session 13</b> DWT: CC6 DWT: CC7	Classroom Field and/or Lab	<ul style="list-style-type: none"> <li>CC6: Review</li> <li>CC6: Quiz</li> <li>CC7: Hands-on</li> </ul>	PP's, Course Materials, Group Discussion,	Click here to enter a date. 08:00 am to 12:00 pm
<b>Session 14</b> DWT: CC8 DWT: CC9	Classroom Field and/or Lab	<ul style="list-style-type: none"> <li>CC8: Full Deconstruction</li> <li>CC9: Materials</li> </ul>	PP's, Course Materials, Handouts, Group	Click here to enter a date. 12:30 pm to 04:30 pm
<b>Session 15</b> DWT: CC7 DWT: CC8	Field and/or Lab	<ul style="list-style-type: none"> <li>CC7: Hands-On and Skills Verification</li> </ul>	Hands-on Activities and Skills verification	Click here to enter a date. 08:00 am to 12:00 pm
<b>Session 16</b> DWT: CC9 DWT: CC10	Classroom Field and/or Lab	<ul style="list-style-type: none"> <li>CC9: Review</li> <li>CC9: Quiz</li> <li>CC10: Job</li> </ul>	PP's, Course Materials, Handouts, Group	Click here to enter a date. 12:30 pm to 04:30 pm
<b>Session 17</b> DWT: CC8 DWT: CC9	Field and/or Lab	<ul style="list-style-type: none"> <li>CC8: Hands-On and Skills Verification</li> </ul>	Hands-on Activities and Skills verification	Click here to enter a date. 08:00 am to 12:00 pm
<b>Session 18</b> DWT: CC9 DWT: Jobsite Field	Classroom Field Trip	<ul style="list-style-type: none"> <li>CC9: Review</li> <li>CC9: Quiz</li> </ul>	PP's, Course Materials, Group	Click here to enter a date. 12:30 pm to 04:30 pm
<b>Session 19</b> DWT: CC8	Field and/or Lab	<ul style="list-style-type: none"> <li>CC8: Hands-On and Skills Verification</li> </ul>	Hands-on Activities and Skills verification	Click here to enter a date.
<b>Session 20</b> DWT: CC10 DWT: Course	Classroom	<ul style="list-style-type: none"> <li>CC10: Review</li> <li>CC10 Quiz</li> </ul>	PP's, Course Materials, Group	Click here to enter a date. 12:30 pm to 04:30 pm
<b>DWT Study and</b>				
<b>Review 1</b> DWT: Review and quiz make	Classroom	<ul style="list-style-type: none"> <li>DWT: Review, Make-up,</li> </ul>	DWT: Individual Study and Group	Click here to enter a date. 08:00 am to 12:00 pm
<b>Review 2</b> DWT: Review and skills	Field and/or Lab	<ul style="list-style-type: none"> <li>DWT: Review, Practice</li> </ul>	DWT: Individual Practice Group Review, Skills	Click here to enter a date. 12:30 pm to 04:30 pm
<b>DWT Credential</b>				
<b>Testing 1</b> Credential Testina	Classroom Or Test Center	<ul style="list-style-type: none"> <li>Written Exam</li> </ul>	Written Exam (timed test)	Click here to enter a date.
<b>Testing 2</b> Credential Testina	Lab	<ul style="list-style-type: none"> <li>Skills Verification</li> </ul>	Skills Verification Exam	Click here to enter a date.
<b>Testing 3</b> Credential Testina	Field Lab	<ul style="list-style-type: none"> <li>Skills Verification</li> </ul>	Skills Verification Exam	Click here to enter a date.
<b>Testing 4</b> Credential Testing	Field Lab Field	<ul style="list-style-type: none"> <li>Skills Verification</li> </ul>	Skills Verification Exam	Click here to enter a date.



## ATTENDANCE:

Learners are expected to attend all class (classroom and in-field) sessions in their entirety. There are no excused absences. If you are unable to attend a session, you will be required to develop a personal completion plan with the instructor (if feasible and at the instructor's discretion). Classes will start and end on time and attendance and punctuality are critical to learner success in this course. Course is sequential; therefore missing a training session will disqualify learners from participating in sessions that follow. At the instructors discretion you may be disqualified from participation due to absence or tardiness.\*

## PARTICIPATION:

Active participation in class sessions is essential to learning as well as to the effectiveness of the class environment. Active participation includes completing course readings prior to class, asking relevant questions, contributing to discussion, eliciting, listening to, and responding sensitively to the ideas of others, and actively engaging in all classroom activities. Lack of participation will constitute an absence, and may result in disqualification at the instructors discretion.\*

## LEARNERS WITH DISABILITIES:

Deconstruction work is a physically demanding field, and while there are positions in the industry that may accommodate certain physical disabilities, participants in this training program must perform physically rigorous activities including, but not limited to lifting, carrying, climbing, and bending. Ability to perform these physical aptitudes ensures that learners can safely participate in the activities required during training, certification testing and employment.

*\* Refer to Attendance Policy, Participant Expectations and School Handbook (if applicable) for additional information.*

## **DECONSTRUCTION WORKER TRAINING**

DAY 1:

SESSION 1

### **LESSON PLAN**

## DECONSTRUCTION WORKER TRAINING

### LESSON PLAN: COURSE OVERVIEW

*With Train the Trainer Notes  
and Guidelines*

**TITLE:** Course Overview – Deconstruction Worker Training (DWT)

**UNIT GOAL:** Gain an understanding of the course content, expectations and format

#### **COURSE OBJECTIVES:**

By attending this training, participants will be able to:

1. Demonstrate an understanding of salvage and deconstruction practices, buildings, and building materials.
2. Describe the process of evaluating a building deconstruction site.
3. Follow safety measures applicable to building deconstruction and building material salvage activities.
4. Identify environmental hazards associated with deconstruction and building material salvage activities.
5. Identify types and demonstrate use of tools applicable to deconstruction and building material salvage activities.
6. Understand a site plan and schedule for building deconstruction.
7. Describe and/or demonstrate steps and processes involved in nonstructural salvage.
8. Describe and/or demonstrate steps and processes involved in full deconstruction.
9. Understand basic materials management principals applicable to deconstruction and building material salvage activities.
10. Follow steps as assigned to facilitate closing out a building deconstruction project.

#### **ICE BREAKER (5 min., 8:00am to 8:05am)**

As students enter the classroom, welcome them, and begin passing around samples, tools, products and pictures that are interesting, cool, unique, etc. Settle the class and ask students what they think the tools are used for, what the products are made of, what the pictures are of, etc. This should be quick and designed to engage the new participants. You don't have to explain what they are yet; just treat this as teasers of what is to come. Remember to show your enthusiasm for these items and excitement to be able to share your knowledge with the class.

Examples of items include: pneumatic denailer, reclaimed wood cutting board, antique door hardware, an action shot from a deconstruction site, an inventory picture of from a building material reuse retail establishment, a piece of reclaimed oak flooring, a sealed container of vermiculite, a cat's paw, etc.

## **COURSE OUTLINE (25 min., 8:05am to 8:30am)**

Describe and identify the course materials that the participants have been provided. Walk the participants through the course syllabus and course expectations, and explain that the objectives and policies will be covered in detail shortly. Describe the course schedule. Manage expectations and answer questions accordingly.

## **INTRODUCTIONS (30 min., 8:30am to 9:00am)**

Get to know your participants and introduce yourself to them. Ask each participant to tell the class about themselves by briefly answering a few questions, such as:

What is your name?

Why are you taking this class?

What work experience do you have?

What is something that you would like for your classmates to know about you?

Introduce yourself and describe your qualifications and experience.

Instructor should pay close attention to time on this exercise, being careful to honor each participant's experience, while not allowing this session to run over the allotted time. More participants = less time for each to introduce themselves.

## **10 MINUTE BREAK (10 min., 9:00am to 9:10am)**

Break

## **COURSE OVERVIEW (30 min., 9:10am to 9:40am)**

### **PP slide 1. Program Introduction**

Discuss program funding, partners and design emphasizing why this opportunity is available for the participants and what resources are available to help them succeed.

This is a great opportunity to invite all of the program partners and allow each of them to briefly state their role as it pertains to the participant experience.

### **PP slide 2. The Building Materials Reuse Association (BMRA)**

The BMRA is a 501 c3 non-profit educational and research organization whose mission is to facilitate building deconstruction and the reuse / recycling of recovered building materials.

Successful completers of the Deconstruction Worker Training program and certification will be qualified to work in the fields of deconstruction and building materials reuse.

### **PP slide 3. Title Page: Course Outline**

Briefly describe what will be covered in this session

### **PP slide 4. Course Description**

Review the course description and focus on the highlighted key words

### **PP slide 5. Course Objectives**

Review the course objectives; discuss how and when each will be covered.

### **PP slide 6. Credentialing Process: Phase 1**

Explain Phase 1 of the credentialing process, and congratulate them for completing the first step and beginning the next by taking this course. Review what "Successful Completion" entails.

**PP slide 7. Credentialing Process: Phase 2**

Explain Phase 2, reassuring them that this course is designed to prepare them for success and will provide them with all of the resources needed to pass.

**PP slide 8. Credentialing Process: Phase 3**

Explain Phase 3, reassure them that 2000 hours is only a year or two of experience, referring back to the introductions, did any of the participants have prior work experience that could possibly count toward the 2000 hrs?

**PP slide 9. Credentialing Process: What it means**

Explain what the credential means to the industry, employer, resume, etc. Discuss what “competency” means and review what it means specifically in the context of this training program and credential.

**PP slide 10. It’s up to you!**

Discuss the importance of attendance and participation.

**PP slide 11. Review and sign**

Review participant expectations, attendance policy. Take any questions. Ask them to sign and then collect signature pages.

**5 MINUTE BREAK (5 min., 9:40am to 9:45am)**

**PP slide 12. Break**

**PRE-TESTS (60 min., 9:40am to 10:40am)**

Briefly discuss the pre-test process and purpose; then administer the pre-tests

(See “Discuss pre-tests” section below for talking points)

**10 MINUTE BREAK (5 min., 10:40am to 10:50am)**

Break

**DISCUSS PRE-TESTS (30 min., 10:50am to 11:20am)**

Ask the participants what they thought about the pre-tests and how they think they did. Reassure everyone that they were not expected to know any of the material, but that the results will help you to guide and tailor the curriculum to best suit their needs. Emphasize that the pre-test is also used as a tool to introduce them the concepts that they will be learning in the coming weeks.

Thank them for taking the pre-tests, and remind them that they will be taking the same test at the end of the class, and that those results help us to evaluate the program, but in no way impact their grade. Reiterate that the pre-test will not be returned to them, but you will be glad to share the results with them if they are interested.

Ask if any of the questions stood out to them or if there were any they dying to know the answers to. Select a sampling of questions and go over the answers in brief. Explain that most of the questions will be covered in detail during the course.

RG

**FACILITY TOUR AND HOUSEKEEPING (30 min., 11:20am to 11:50am)**

Take the participants on a tour of the facilities, including any shop and lab spaces. Discuss field house if applicable. Provide an overview of classroom vs. lab vs. field expectations. Assign lockers and tool bags/buckets if applicable.

**CLOSURE (10 min., 11:50am to 12:00pm)**

Review course objectives and schedule, discuss what will be covered in the afternoon session

**END OF SESSION – LUNCH (30 min., 12:00am to 12:30pm)**

**MATERIALS, EQUIPMENT AND RESOURCES**

Projector, screen, PowerPoint slides  
Whiteboard and markers and/or easel paper  
Pre-Tests

**ASSESSMENT:**

Formative: Discussion  
Summative: Pre-Tests

**ADAPTATIONS AND MODIFICATIONS :**

Direct questioning is perceived differently in different cultures. As such, observe cultural sensitivity when determining appropriate questioning methods.

Response wait time will also need to be longer for non-native English speakers. Typical wait time should be 5-7 seconds. For English Language Learners and Speakers of English as a Second Language, wait time should be increased by 3-5 seconds.

## **DECONSTRUCTION WORKER TRAINING**

DAY 1:

SESSION 1

### **PRESENTATION**



---

*Acknowledgment:* “This material is based upon work supported, in whole or in part, by the Department of Energy - Office of Energy Efficiency and Renewable Energy under Grant Award Number DE-EE0003564 from the Energy Efficiency and Conservation Block Grant Program made available pursuant to the American Recovery and Reinvestment Act (RECOVERY ACT) of 2009.”



Welcome

V1.1

Deconstruction Worker Training



[www.BMRA.org](http://www.BMRA.org), [contact@bmra.org](mailto:contact@bmra.org), (773) 340-BMRA



COURSE

OUTLINE

Winter 2013  
V1.1

BMRA Deconstruction Worker Training

©Building Materials Reuse Association, 2013, All Rights Reserved

# Course Description

V1.1

BMRA Deconstruction Worker Training

... The Deconstruction Worker Training (DWT) course is an

introductory course in deconstruction. Successful completion of this course will prepare learners for the competency based

**credentialing exams.**

Passing the exams will

**demonstrate** content **knowledge and** necessary **skills** to qualify learners as **deconstruction workforce ready.**

... This course is designed as an 80 hour course conducted

8 hours per day for a duration of 10 days. The 8 daily hours of instruction will include both **classroom, lab** and/or **in-field** hands-on experiential instruction.

©Building Materials Reuse Association, 2013, All Rights Reserved

# Course Objectives

V1.1

BMRA Deconstruction Worker Training

By attending this training, participants will be able to:

1. Demonstrate an understanding of salvage and deconstruction practices, buildings, and building materials.
2. Describe the process of evaluating a building deconstruction site.
3. Follow safety measures applicable to building deconstruction and building material salvage activities.
4. Identify environmental hazards associated with deconstruction and building material salvage activities.
5. Identify types and demonstrate use of tools applicable to deconstruction and building material salvage activities.
6. Understand a site plan and schedule for building deconstruction.
7. Describe and/or demonstrate steps and processes involved in nonstructural salvage.
8. Describe and/or demonstrate steps and processes involved in full deconstruction.
9. Understand basic materials management principals applicable to deconstruction and building material salvage activities.
10. Follow steps as assigned to facilitate closing out a building deconstruction project.

©Building Materials Reuse Association, 2013, All Rights Reserved

# Credentialing Process

V1.1

BMRA Deconstruction Worker Training

How do I become certified, and what does that mean?

## **Phase 1**

9

Obtain Prerequisites

%

Successfully complete this course.

- ” Quizzes
- ” Skills assessments
- ” Classroom activities
- ” Reading assignments
- ” Homework
- ” Attendance
- ” Participation

%

Receive certificate of completion from qualified trainer

# Credentialing Process

V1.1

BMRA Deconstruction Worker Training

How do I become certified, and what does that mean?

## Phase 2

- Pass the written exam with a score of 75% or better
  - 2 hr timed test, 100 questions
- Pass the skills certification exam
  - 20 hands-on and/or verbal components
  - Competency score must be achieved on all stations
- Receive Provisional Credential from BMRA

# Credentialing Process

V1.1

BMRA Deconstruction Worker Training

How do I become certified, and what does that mean?

## **Phase 3**

‰

Obtain 2000 hours of documented industry experience

” Verified by the BMRA

‰

Receive Full Credential from BMRA

‰

Maintain

required

credential

through

continuing

education as

# Credentialing Process

V1.1

BMRA Deconstruction Worker Training

How do I become certified, and what does that mean?

## What it means

- ‰ The BMRA Deconstruction Worker Credential is a **competency based** credentialing process.
- ‰ Potential employers value trained and certified workers.
- ‰ Some funders may require the use of certified workers.
- ‰ This course will help to prepare you for a pathway of success and opportunity in the field of deconstruction and related industries.

### Competency as defined for the Deconstruction Worker:

The possession of the minimum level of knowledge and proficiency required to receive and process information, make informed decisions and take physical action to adequately, safely, and repeatably deliver deconstruction and related services as assigned.

©Building Materials Reuse Association, 2013, All Rights Reserved



# It's up to you!

V1.1

BMRA Deconstruction Worker Training

We're here to help, but you have to do your part.

## **Attendance**

- There is no such thing as an “excused” absence.
- If you have previous commitment that cannot be rescheduled, and it takes precedence over your future career, talk to me first so that we can develop an individual action plan to ensure that you receive the missed content (if possible).
- If you have an emergency, please deal with it as needed and meet with me as soon as you are able to develop an individual action plan to ensure that you receive the missed content (if possible).

## **Participation**

- Participation is critical to success. Attendance without participation = failure.
- Be on time, every day. Return from breaks and lunch on time, every time.
- Engage in and contribute to classroom, field and lab activities.
- Read the materials, do the work and study.
- Don't sleep or use cellular phones in class, in the lab or in the field.
- Eat healthfully and get adequate sleep at night.

# Review and Sign

V1.1

BMRA Deconstruction Worker Training






## **DECONSTRUCTION WORKER TRAINING**

DAY 1:

SESSION 1

HANDOUT: PRESENTATION

V1.1 Deconstruction Worker Training



*Acknowledgment:* "This material is based upon work supported, in whole or in part, by the Department of Energy - Office of Energy Efficiency and Renewable Energy under Grant Award Number DE-EE0003564 from the Energy Efficiency and Conservation Block Grant Program made available pursuant to the American Recovery and Reinvestment Act (RECOVERY ACT) of 2009."

@Building

---

---

---

---

---

---

---

---

Welcome

V1.1 Deconstruction Worker Training



Building Materials Reuse Association

[www.BMRA.org](http://www.BMRA.org), [contact@bmra.org](mailto:contact@bmra.org),  
(773) 340-BMRA

---

---

---

---

---

---

---

---



COURSE OUTLINE

Winter 2013 BMRA Deconstruction Work

---

---

---

---

---

---

---

---

Course Description

... The Deconstruction Worker Training (DWT) course is an introductory course in deconstruction. Successful completion of this course will prepare learners for the competency based **credentialing exams**. Passing the exams will

**demonstrate** content **knowledge and** necessary **skills** to qualify learners as **deconstruction workforce ready**.

... This course is designed as an 80 hour course conducted 8 hours per day for duration of 10 days. The 8 daily hours of instruction will include both **classroom, lab** and/or **in-field** hands-on experiential instruction.

©Building Materials Reuse Association, 2013, All Rights Reserved

Course Objectives

By attending this training, participants will be able to:

1. Demonstrate an understanding of salvage and deconstruction practices, buildings, and building materials.
2. Describe the process of evaluating a building deconstruction site.
3. Follow safety measures applicable to building deconstruction and building material salvage activities.
4. Identify environmental hazards associated with deconstruction and building material salvage activities.
5. Identify types and demonstrate use of tools applicable to deconstruction and building material salvage activities.
6. Understand a site plan and schedule for building deconstruction.
7. Describe and/or demonstrate steps and processes involved in nonstructural salvage.
8. Describe and/or demonstrate steps and processes involved in full deconstruction.
9. Understand basic materials management principals applicable to deconstruction and building material salvage activities.
10. Follow steps as assigned to facilitate closing out a building deconstruction project.

©Building Materials Reuse Association, 2013, All Rights Reserved

Credentialing Process \_\_\_\_\_

How do I become certified, and what does that mean? \_\_\_\_\_

**Phase 1**

9 Obtain \_\_\_\_\_  
Prerequisites

‰ Successfully complete this course.

” Quizzes \_\_\_\_\_

” Skills assessments \_\_\_\_\_

” Classroom activities \_\_\_\_\_

” Reading assignments \_\_\_\_\_

” Homework \_\_\_\_\_

” Attendance \_\_\_\_\_

” Participation \_\_\_\_\_

‰ Receive certificate of completion from qualified trainer \_\_\_\_\_

©Building Materials Reuse Association, 2013, All Rights Reserved \_\_\_\_\_

Credentialing Process

How do I become certified, and what does that mean?

**Phase 2**

- Pass the written exam with a score of 75% or better
  - 2 hr timed test, 100 questions
- Pass the skills certification exam
  - 20 hands-on and/or verbal components
  - Competency score must be achieved on all stations
- Receive Provisional Credential from BMRA

©Building Materials Reuse Association, 2013, All Rights Reserved

Credentialing Process

How do I become certified, and what does that mean?

**Phase 3**

- Obtain 2000 hours of documented industry experience
  - Verified by the BMRA
- Receive Full Credential from BMRA
- Maintain credential through continuing education as required

©Building Materials Reuse Association, 2013, All Rights Reserved

Credentialing Process

How do I become certified, and what does that mean?



**What it means** The BMRA Deconstruction Worker Credential is a **competency based** credentialing process.

- Th
- Potential employers value trained and certified workers.
- Some funders may require the use of certified workers.
- This course will help to prepare you for a pathway of success and opportunity in the field of deconstruction and related industries.

**Competency as defined for the Deconstruction Worker:**

The possession of the minimum level of knowledge and proficiency required to receive and process information, make informed decisions and take physical action to adequately, safely, and repeatably deliver deconstruction and related services as assigned.

©Building Materials Reuse Association, 2013, All Rights Reserved

It's up to you!

---

We're here to help, but you have to do your part.

---

**Attendance**

- There is no such thing as an "excused" absence.
- If you have previous commitment that cannot be rescheduled, and it takes precedence over your future career, talk to me first so that we can develop an individual action plan to ensure that you receive the missed content (if possible).

—

- If you have an emergency, please deal with it as needed and meet with me as soon as you are able to develop an individual action plan to ensure that you receive the missed content (if possible).

---

**Participation**

- Participation is critical to success. Attendance without participation = failure.
- Be on time, every day. Return from breaks and lunch on time, every time.
- Engage in and contribute to classroom, field and lab activities.
- Read the materials, do the work and study.
- Don't sleep or use cellular phones in class, in the lab or in the field.
- Eat healthfully and get adequate sleep at night.

©Building Materials Reuse Association, 2013, All Rights Reserved

Review and Sign



---

---

---

---

---

---

---

©Building Materials Reuse Association, 2013, All Rights Reserved

---

---

---

---

## **DECONSTRUCTION WORKER TRAINING**

DAY 1:

SESSION 1

HANDOUT: CC'S

## DECONSTRUCTION WORKER TRAINING

## CORE COMPETENCIES

Competency One: Introduction to Deconstruction	
Learners will be able to:	
1.1	Define demolition and deconstruction and subsets thereof: Salvage, strip-out, and selective demolition.
1.2	Define building materials reuse, total and selective.
1.3	Define the goals of deconstruction and building material reuse.
1.4	Describe the social, environmental, and economic advantages to deconstruction and building material reuse.
1.5	Compare and contrast the methods of demolition and deconstruction and explain the advantages and disadvantages of each in particular situations.
1.6	Identify building materials and core components: determining material volumes, structural types, and appropriateness for demolition and deconstruction.
	<i>Exposure for cursory understanding</i>
1.7	Identify salvage and recycling opportunities in residential, commercial, and institutional buildings.
1.8	Identify building types and component systems.
1.9	List, in order, the basic steps in deconstructing a building.
1.10	List, in order, the basic steps to stripping out a building.
1.11	Define construction and demolition waste, recycling, reuse, source separation and mixed debris.
1.12	Identify reuse markets for materials generated on a deconstruction project.
	<i>Exposure for cursory understanding</i>

Competency Two: Evaluating the Building Site	
Learners will be able to:	
2.1	Describe the purpose of conducting a building site evaluation.
2.2	List and describe the primary goals which a building site evaluation should achieve.
2.3	Identify common structural components in a building by type.
2.4	Locate load bearing partitions in a building.
2.5	Conduct an exploratory investigation to identify building layers (e.g. roofing, partition finishes, flooring, etc.) and material types.
2.6	Identify a building's Mechanical, Electrical, Plumbing systems, their shut offs and the associated principles of operation for each type of system.
2.7	Understand how building age may impact deconstruction project.
2.8	Identify some of the structural hazards that might exist in a candidate building and solutions to minimize risk of structural failure while being deconstructed.
2.9	Identify potential material egress routes and material staging, processing, and loading areas on a

	project.
2.10	Identify the major components in a contract agreement. <i>Exposure for cursory understanding</i>
2.11	Locate permitted waste recycling markets on state, county, and regional waste district web pages. <i>Exposure for cursory understanding</i>
2.13	Locate reuse markets and identify their acceptance guidelines. <i>Exposure for cursory understanding</i>
2.14	Describe “salvage potential” and the factors to be considered in determining a building’s value.

<b>Competency Three: Jobsite Safety</b>	
Learners will be able to:	
3.1	Describe the all key safety concepts as they apply to a deconstruction site or project.
3.2	Identify and describe safety hazards that might be found on a deconstruction job site.
3.3	Describe the roles of planning, supervision, and teamwork in ensuring a safe deconstruction job site.
3.4	Identify and describe the roles of major federal regulating agencies (including OSHA and EPA) in governing safety practice for building deconstruction.
3.5	Describe the typical roles of state and local agencies, such as regional Clean Air Agencies, state Departments of Environmental Protection or local public utilities.
3.6	Demonstrate understanding, fitting and use of various types of Personal Protection Equipment (PPE) used on deconstruction projects.
3.7	Describe safety procedures applicable to non-structural salvage.

<b>Competency Four: Hazardous Materials</b>	
Learners will be able to:	
4.1	List and describe 12 types of chemical hazards that may be encountered on a deconstruction project.
4.2	Summarize OSHA safety requirements for working around asbestos-containing materials (ACM).
4.3	Summarize EPA requirements for handling and disposal of ACM.
4.4	Describe appropriate methods for recognizing and handling lead-based paint containing materials on a deconstruction job site.
4.5	Describe the basic requirements of the EPA Renovation, Repair, and Painting Rule and explain when it applies to a deconstruction job site.
4.6	List 3 products found in buildings that may contain mercury and describe how to handle them.
4.7	Describe hazards associated with pressure-treated (PT) wood and how to minimize those on a deconstruction job site.
4.8	List 3 products found in buildings that may contain polychlorinated biphenyls (PCBs) and describe how to handle them.
4.9	Describe an appropriate response for a worker who comes upon evidence for clandestine drug

	operations.
4.10	Define “universal wastes,” list examples and describe how they should be handled when encountered on a deconstruction job site.
4.11	Describe typical safety measures for working with moldy materials.
4.12	Describe worker procedures to minimize exposure to silica on a deconstruction job site.

<b>Competency Five: Tools for Deconstruction and Building Material Salvage</b>	
Learners will be able to:	
5.1	Define what a tool is in the context of salvage and deconstruction and articulate the hallmarks which make a tool valuable.
5.2	Identify and describe appropriate uses of typical hand tools in salvage and deconstruction activities.
5.3	Identify and describe appropriate use of typical power tools in salvage and deconstruction activities.
5.4	Demonstrate the use of the most common tools used in salvage and deconstruction.
5.5	Explain how the scale of a project affects the choice of tools for that project.

<b>Competency Six: Site Plan, Schedule, and Work Plan</b>	
Learners will be able to:	
6.1	Follow a site safety plan including the identification of hazards overhead, underfoot, and in the way and how to best protect from these potential hazards.
6.2	Describe how to secure a job site.
6.3	Describe how to plan for and protect from weather and natural elements including rain, snow/ice, cold, heat, and rain.
6.4	Identify utility shut offs/disconnects, turn them off, and lock them out or contract to have them disconnected by service providers.
	<i>Exposure for cursory understanding</i>

<b>Competency Seven: Nonstructural Salvage</b>	
Learners will be able to:	
7.1	Explain how non-structural salvage fits into a deconstruction project.
7.2	Explain considerations for stand-alone non-structural salvage projects (no deconstruction).
7.3	Describe factors influencing the order in which items are salvage.
7.4	List and describe, in order, the steps in safely removing carpet.
7.5	List and describe, in order the steps in safely removing appliances.
7.6	List and describe, in order, the steps in safely removing countertops and cabinets.
7.7	List and describe, in order, the steps in safely removing finished wood flooring.
7.8	List and describe, in order, the steps in safely removing windows.
7.9	List and describe, in order, the steps in safely removing doors.
7.10	List and describe, in order, the steps in safely removing sinks, tubs, toilets, and other plumbing

	items.
7.11	List and describe, in order, the steps in safely removing light fixtures.
7.12	Explain the importance of reevaluating materials for reuse potential during and after removal.

<b>Competency Eight: Full Deconstruction</b>	
Learners will be able to:	
8.1	Describe the basic steps in sequencing work for full deconstruction and identify potential variations in this order based on the type of building encountered.
8.2	Describe factors to consider before work starts.
8.3	Distinguish between a load bearing and non-load bearing wall.
8.4	Describe steps in roof deconstruction.
8.5	Describe steps in wall deconstruction.
8.6	Describe steps in floor deconstruction.
8.7	Describe steps in getting lumber ready for shipment.

<b>Competency Nine: Materials Management</b>	
Learners will be able to:	
9.1	Demonstrate knowledge of locating local waste haulers, recyclers, and reuse centers. <i>Exposure for cursory understanding</i>
9.2	Describe how C&D reuse/recycling infrastructure influences choices about material handling and disposition. <i>Exposure for cursory understanding</i>
9.3	Demonstrate knowledge in estimating materials recovery from a salvage or deconstruction project. <i>Exposure for cursory understanding</i>
9.4	Describe how efficiency can be achieved in moving, storing, loading, and transporting of recovered materials.
9.5	Identify commonly salvaged materials and components and describe how to handle them to retain maximum value.
9.6	Describe the process for removal, handling, storage/stacking, and loading/transport of: *Wood flooring *Cabinets *Doors *Windows *Lighting fixtures *Appliances *Siding materials *Roofing *Structural lumber *Brick
9.7	Identify commonly recycled building materials and describe how to sort and handle these

	materials.
--	------------

Competency Ten: Job Closeout	
Learners will be able to:	
10.1	List the basic closeout requirements required for all deconstruction jobs.
10.2	Identify project specific closeout requirements and where to find them.
	<i>Exposure for cursory understanding</i>
10.3	Define a “clean” post project job site.
10.4	Explain project reporting data, types and quantities of data tracked and how it is reported.
10.5	Conduct an end of project tool inventory.
10.6	List the OSHA regulations associated with protecting or grading open cellar holes.



**DECONSTRUCTION WORKER TRAINING**

DAY 1:

SESSION 1

HANDOUT: POLICIES

## DECONSTRUCTION WORKER TRAINING

### PARTICIPANT EXPECTATIONS

Students are required to adhere to Student Policies and Procedures regarding academic integrity and student conduct, as well as all other applicable handbooks and manuals.

#### Training Hours

8:00 A.M. – 4:30 P.M. Monday through Friday

#### Professional Conduct

Participants are expected to conduct themselves as business professionals at all times. Professional conduct includes, but *is not limited to*:

- Treating fellow students, instructors and staff in a respectful manner. This includes using professional language at all times.
- Attending all class sessions.
- Arriving on time, not leaving class early, and taking only authorized breaks.
- Conducting personal business on break times and/or lunch time, not during class time
- Not bringing any food/drink into the computer lab.
- Only going on websites as required by the instructors. Computer use is monitored and tracked. Accessing unauthorized web sites is strictly prohibited. This includes, Facebook, YouTube, etc. while in class.
- Turning off all cell phones while in class. It is rude, disruptive, and unprofessional to have a cell phone ring during class. If you must have your cell phone on, please keep it on vibrate.

#### Alcoholic Beverages and Drugs

Use, possession, or distribution of alcohol, and drugs are forbidden. Persons appearing in the building or project site while under the influence of alcoholic beverages, narcotics, or other dangerous drugs, except as expressly permitted by law, will be subject to disciplinary and/or legal actions.

#### Children and pets

Children and pets are not allowed in the classroom, lab or on project sites.

#### Dress Code Information

Students in the program are to adhere to the following general dress code. Exceptions and modifications are made at the discretion of the instructor.

#### **Permitted attire for lab and field work:**

Durable outerwear

Pants (jeans or other durable work pants)

Long sleeved work shirts (Henley or other durable shirt)

Steel toed work boots

**Permitted attire for classroom activities:**

All clothing listed above for lab and field work is also acceptable for the classroom

Also acceptable is any professional/business casual attire

Hats, hoods and caps are **NOT** permitted to be worn in the classroom

**Unsafe attire:**

Loose fitting clothing or accessories

Unkempt or long hair that is not contained

Earrings, necklaces, bracelets, rings or other jewelry that may interfere with safe tool use

Long Fingernails (fingernails should be trimmed and neat)

Clothing must protect skin (i.e. no shorts, skirts, halter tops, sweat pants, pajamas etc.)

**Other attire:**

All PPE as provided to participants

Layers and outerwear as needed for cold weather

Rain gear as needed for rainy conditions

Change of clothes to protect against hazards

## Confirmation of Understanding Program Expectations

I have read and comprehend the BMRA Deconstruction Worker Training Participant Expectations. My signature below indicates that I agree to be governed by the information provided. Failure to follow these established guidelines will cause disciplinary action up to and including dismissal from the BMRA Deconstruction Worker Training Program.

Date \_\_\_\_\_

Class \_\_\_\_\_

Name \_\_\_\_\_

Print Name

\_\_\_\_\_

Signature

## DECONSTRUCTION WORKER TRAINING

### ATTENDANCE POLICY

The BMRA Deconstruction Worker Training Program prepares participants to work in the deconstruction and building materials reuse industries. Part of being work ready and employable, is demonstrating reliability and punctuality to potential employers through attendance. This program is progressive and intensive; absenteeism and/or tardiness will greatly diminish participant's ability to succeed. This 80hr course is divided into 4hr segments, for a total of 20 segments. Attendance and participation in all segments is expected. Tardiness and absenteeism will be recorded.

#### Training Hours

8:00 A.M. – 4:30 P.M. Monday through Friday

#### Lunch

Lunch will typically be held from 12:00 P.M. – 12:30 P.M. Monday through Friday, but specific activities or functions may require alternate schedules. Changes to the schedule will be made at the instructor's discretion, and do not alter Attendance Requirement as outlined below.

#### Breaks

Breaks will be scheduled at the instructor's discretion. Breaks, as scheduled by the instructor, apply to the Attendance Requirements as outlined below.

#### Attendance Requirements

- An **absence** during any segment is counted as **1 point**. Missing more than 2hrs of any segment will be considered as an absence.
- A **tardy** during any segment is counted as a **½ point**. Missing more than 15 total minutes from any segment will be considered as a tardy (this includes arriving late or departing early from any segment, lunch or break, as well as leaving training at any time other than scheduled).
- Lack of participation, sleeping or disruptive behavior during any segment will, at the instructors discretion, be counted as a tardy or absence.
- Points resulting from absenteeism or tardiness are cumulative. The accumulation of greater than **2 points** by any participant may result in **expulsion from the program**.

### THERE ARE NO EXCUSED ABSENCES OR TARDIES

In the case of a building or public transportation shut down the necessary adjustments to participant attendance and/or course schedule will be made. Attendance will be recorded through sign in sheets. If a participant neglects to sign in, it is the participant's responsibility to notify one of the instructors, in written form, as soon as possible. Participants may request to see their attendance record at any time.

Confirmation of Understanding Program Expectations

I have read and comprehend the BMRA Deconstruction Worker Training Program Attendance Policy. My signature below indicates that I agree to be governed by the information provided. Failure to follow these established guidelines will cause disciplinary action up to and including dismissal from the BMRA Deconstruction Worker Training Program.

Date \_\_\_\_\_

Class \_\_\_\_\_

Name \_\_\_\_\_

Print Name

\_\_\_\_\_

Signature



**DECONSTRUCTION WORKER TRAINING**

DAY 1:

SESSION 1

PRE/POST TESTS



G

## DECONSTRUCTION WORKER TRAINING

## PRE/POST TEST

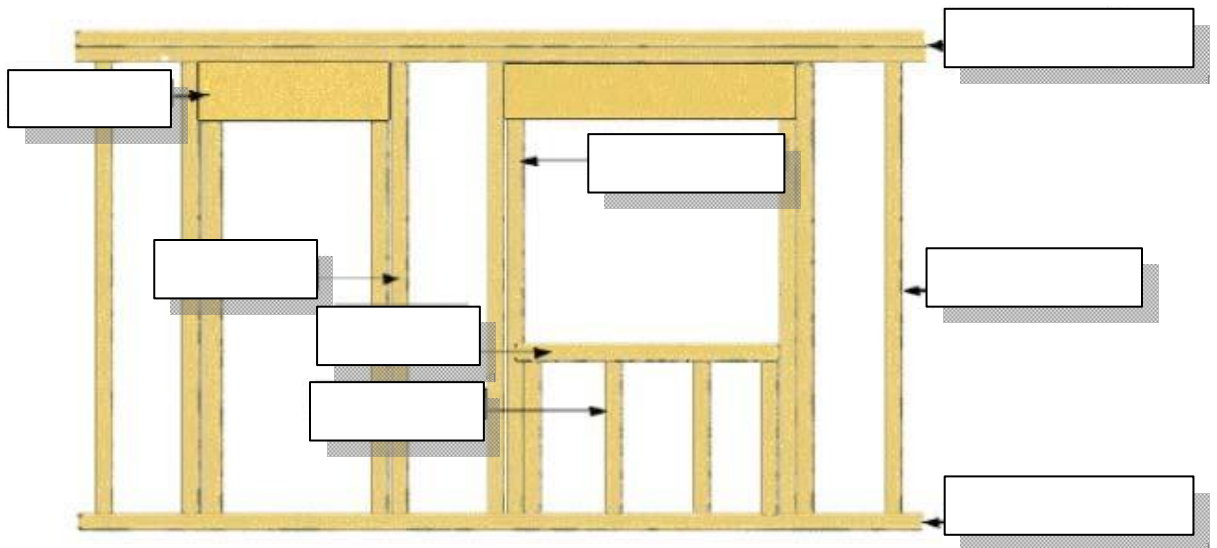
Name: \_\_\_\_\_ Date: \_\_\_\_\_

This pre-test is for evaluation purposes only. Do your best. If you do not know the answer, move on to the next question.

- 1) What 2 factors determine the size a foundation must be:
  - a. The age and color of the house
  - b. The weight of the house and soil density
  - c. The soil density and location of the house
  - d. The weight of the house and its location
  
- 2) What is a beam?
  - a. A vertical structural framing member resting on 2 or more points
  - b. A horizontal non-structural framing member resting on 2 or more points
  - c. A horizontal structural framing member resting on 2 or more points
  - d. A vertical non-structural framing member resting on 2 or more points
  
- 3) What is a cantilever?
  - a. A floor that extends past the exterior wall of the floor below
  - b. A wall that extends past the floor above
  - c. A floor that has no bridging
  - d. A wall that has no headers
  
- 4) What is a band joist?
  - a. A beam that rests on 3 or more points
  - b. The outer most floor joist surrounding the floor system
  - c. The inner most floor joist
  - d. A beam that rests on only 1 point
  
- 5) The bridging in a house:
  - a. Holds up the sub floor
  - b. Holds up the floor joists
  - c. Keeps the walls straight
  - d. Keeps the floor joists straight

- 6) A house with a slab on grade foundation:
- a. Has trench footings
  - b. Has a crawlspace
  - c. Has a basement
  - d. Has no footings
- 7) Every house has a sill plate, attaching the house to the foundation.
- True
- False
- 8) Name 2 different materials foundations can be made of: \_\_\_\_\_ and \_\_\_\_\_.
- 9) Name the 2 most common types of residential framing: \_\_\_\_\_ and \_\_\_\_\_.
- 10) An elevation is:
- a. The direction a house faces
  - b. A 3D picture of the house
  - c. A 2D picture of one side of the house
  - d. Is a compass direction
- 11) A truss is an engineered structural roof framing member put together by gussets.
- True
- False
- 12) Doors have sashes and panes.
- True
- False
- 13) What is a header?
- a. A vertical structural framing member installed above a window or door opening that carries all the weight above.
  - b. A horizontal non-structural framing member installed above a window or door opening that carries all the weight above.
  - c. A vertical non-structural framing member installed above a window or door opening that carries all the weight above.
  - d. A horizontal structural framing member installed above a window or door opening that carries all the weight above.

14) Fill in the boxes with options listed below:



Jack Stud, Header, Cripple, Stud, Bottom Plate, Double Top Plate, King Stud, Rough Sill

15) A load bearing building member:

- a. Can safely be removed
- b. Lubricates a door hinge
- c. Carries the weight of structures above it
- d. Is usually an interior wall

16) A fenestration is a:

- e. Type of door
- f. Type of window
- g. Hole in the building for pipes
- h. Purposeful hole in the building envelope to place a door or window

17) When you walk into the doorway of a house you step across the?

- a. Threshold
- b. Gateway
- c. Sill
- d. Jamb

18) Name 4 types of windows: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

19) Old windows used \_\_\_\_\_ to keep them from slamming shut.

- a. Springs
- b. Levers
- c. Sash weights
- d. Sash panes

20) New windows are usually installed with a nailing fin.

- True
- False

21) What is deconstruction?

22) The 3 components of the Triple bottom line are:

- a. Social, Economic, and Creative
- b. Social, Economic, and Environmental
- c. Economic, Creative, and Environmental
- d. Social, Creative, and Environmental

23) The triple bottom line approach is ultimately a focus on:

- a. Sustainability
- b. Confidentiality
- c. Responsibility
- d. Municipality

24) Two types of deconstruction are:

- a. Demolition and salvage
- b. Structural and non-structural
- c. Structural and implosion
- d. Renovation and skimming

25) Which of the following could be a **barrier** to deconstruction?

- a. Deconstruction is good for the environment
- b. Deconstruction puts money into the community
- c. Demolition waste is inexpensive to dispose of
- d. Demolition takes longer

- 26) What things can we do to stop the linear cycle for construction debris?
- a. Put trash in the landfill
  - b. Recycle and reuse
  - c. Build less
  - d. Burn our trash on sites
- 27) Which is a benefit of deconstruction over demolition?
- a. Employs less people
  - b. Sends more garbage to the land fill
  - c. Is better for the environment
  - d. Is faster
- 28) What one step does a licensed contractor need to do prior to pulling a demolition permit?
- a. Disconnect the utilities
  - b. Abate lead and asbestos
  - c. Open hole inspection
  - d. Environmental assessment
- 29) What are 2 materials that generally have a salvage value?
- a. Asphalt shingles, stucco
  - b. Wood, metal
  - c. Metal, concrete
  - d. Concrete, plaster
- 30) The first step of structural deconstruction generally consists of doing 2 things; they are:
- a. Roof removal, window removal
  - b. Abatement, window removal
  - c. Clean up, roof removal
  - d. Abatement, clean up
- 31) The chimney should be removed:
- a. In sections starting at the top
  - b. First
  - c. Last
  - d. In sections starting at the bottom

- 32) The term “carbon footprint” refers to:
- a. The amount of greenhouse gases emitted by and individual in a year
  - b. The amount of carbon we can salvage from a structure
  - c. The amount of carbon dioxide emitted due to the the consumption of fossil fuels by a particular person, group, etc
  - d. The amount of pollution in the air and ground
- 33) When doing a full structural deconstruct, the contractor should disassemble the house in a certain order. Out of the options below which would be the best order?
- a. Window and door removal, appliance and fixtures, abate and clean up, exterior and interior finishes, walls and floors, roof removal
  - b. Abate and clean up, exterior and interior finishes, appliance and fixtures, window and door removal, roof removal, walls and floors
  - c. Abate and clean up, appliance and fixtures, window and door removal, interior and exterior finishes, roof removal, walls and floors
  - d. Interior and exterior finishes, abate and clean up, appliance and fixtures, window and door removal, roof removal, walls and floors
- 34) Which of the following is a way to reduce the “carbon footprint” during the deconstruction process?
- a. Working lead safe
  - b. Using heavy machinery
  - c. Using diesel generators
  - d. Using well maintained equipment
- 35) Diversion rate refers to:
- a. A general guideline to build by
  - b. The amount of money that salvaged materials can be sold for after calculating costs
  - c. The percentage of material removed that was salvaged as opposed to disposed of
  - d. An equation used to calculate the capacity of a sewer pipe
- 36) What does LEED stand for?
- a. Leadership in Environmental and Economic Decision
  - b. Leadership in Energy Efficient Design
  - c. Leadership in Energy and Environmental Design
  - d. Leadership in Energy Equation Diagrams

37) LEED provides a guideline and awareness in sustainable building practices.

True

False

38) Name three characteristics that affect salvage value.

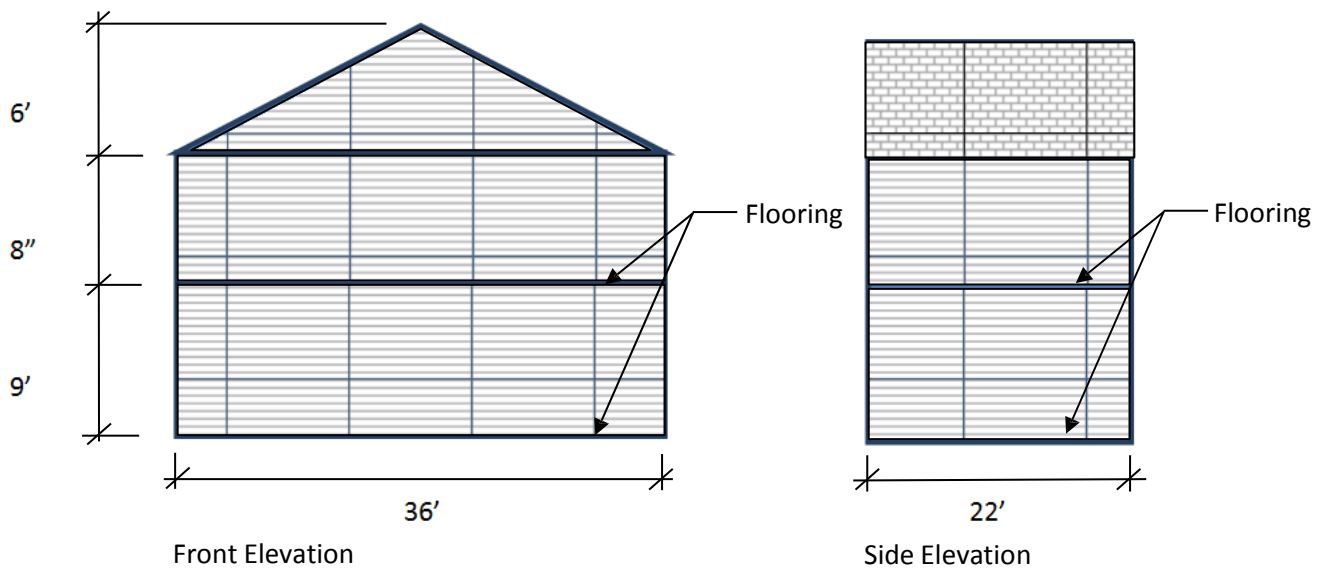
1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

39) How many square feet of flooring are in the house below? \_\_\_\_\_

40) How many square feet of siding are on the house below? \_\_\_\_\_



G

## DECONSTRUCTION WORKER TRAINING

**MATH PRE/POST TEST**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

This pre-test is for evaluation purposes only. Do your best. If you do not know how to solve the problem, move on to the next question. Show all of your work, and do not erase.

You may use a calculator to answer the following questions. Answers may be expressed in decimal or fraction form.

$$\begin{array}{r} 1) \quad 8 \frac{1}{2}'' \\ \quad 17 \frac{3}{4}'' \\ \quad +23 \frac{3}{8}'' \\ \hline \end{array}$$

$$\begin{array}{r} 2) \quad 23 \frac{1}{4}'' \\ \quad - 7 \frac{1}{8}'' \\ \hline \end{array}$$

$$\begin{array}{r} 3) \quad 23.25 \\ \quad \times 12.75 \\ \hline \end{array}$$

$$4) \quad 350/40 = \underline{\hspace{2cm}} \quad 5) \quad 3/8 \times 120 = \underline{\hspace{2cm}}$$

$$6) \quad \text{How many inches are in 5 feet? } \underline{\hspace{2cm}}$$

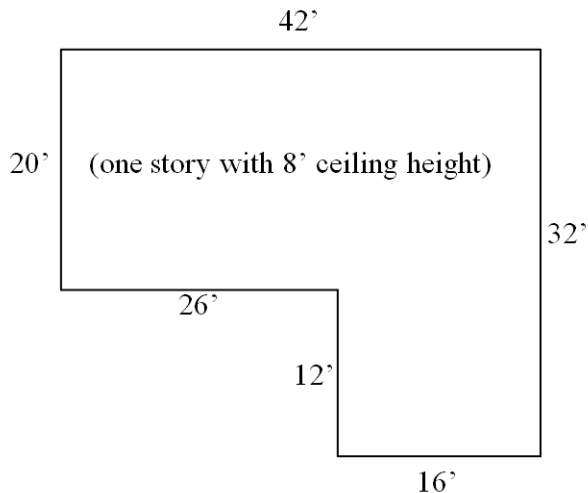
$$7) \quad \text{One square foot equals how many square inches? } \underline{\hspace{2cm}}$$

$$8) \quad \text{What is the perimeter of the house diagrammed below? } \underline{\hspace{2cm}} \text{ feet}$$

$$9) \quad \text{What is the area of the house diagrammed below? } \underline{\hspace{2cm}} \text{ square feet}$$

$$10) \quad \text{What is the volume of the house diagrammed below? } \underline{\hspace{2cm}} \text{ cubic feet}$$

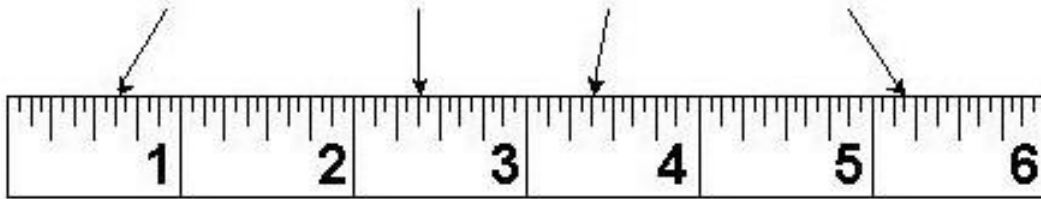
$$11) \quad \text{What is 75\% of 2,400? } \underline{\hspace{2cm}}$$





Write in the measurement indicated by the arrow pointing at the tape measure.

12) \_\_\_\_\_ 13) \_\_\_\_\_ 14) \_\_\_\_\_ 15) \_\_\_\_\_



16) If you have a piece of lumber that is 6" wide, 2" thick and 6' long, how many board feet would you have? \_\_\_\_\_

17) If you have a piece of hardwood flooring that is 3 1/2" wide, 3/4" thick and 12' long, how many square feet of flooring would you have? \_\_\_\_\_

18) If you have a piece of base molding that is 7 7/8" tall, 5/8" thick and 14' long, how many linear feet of molding would you have? \_\_\_\_\_

19) If it takes 2 minutes for you to salvage one brick (making it ready for resale), and you can resell each brick for \$0.45, how long will it take for you to have \$49.50 worth of brick ready for resale?  
\_\_\_\_\_

20) How much does a 10lb bag of dirt weight? \_\_\_\_\_

## **DECONSTRUCTION WORKER TRAINING**

DAY 1:

SESSION 1

PRE/POST TESTS – ANSWER KEYS

G

## DECONSTRUCTION WORKER TRAINING

## PRE/POST TEST

Name: Answer Key Date: \_\_\_\_\_

This pre-test is for evaluation purposes only. Do your best. If you do not know the answer, move on to the next question.

- 1) What 2 factors determine the size a foundation must be:
  - a. The age and color of the house
  - b. The weight of the house and soil density**
  - c. The soil density and location of the house
  - d. The weight of the house and its location
  
- 2) What is a beam?
  - a. A vertical structural framing member resting on 2 or more points
  - b. A horizontal non-structural framing member resting on 2 or more points
  - c. A horizontal structural framing member resting on 2 or more points**
  - d. A vertical non-structural framing member resting on 2 or more points
  
- 3) What is a cantilever?
  - a. A floor that extends past the exterior wall of the floor below**
  - b. A wall that extends past the floor above
  - c. A floor that has no bridging
  - d. A wall that has no headers
  
- 4) What is a band joist?
  - a. A beam that rests on 3 or more points
  - b. The outer most floor joist surrounding the floor system**
  - c. The inner most floor joist
  - d. A beam that rests on only 1 point
  
- 5) The bridging in a house:
  - a. Holds up the sub floor
  - b. Holds up the floor joists
  - c. Keeps the walls straight
  - d. Keeps the floor joists straight**

6) A house with a slab on grade foundation:

- a. Has trench footings
- b. Has a crawlspace
- c. Has a basement
- d. Has no footings

7) Every house has a sill plate, attaching the house to the foundation.

True

False

8) Name 2 different materials foundations can be made of:

Concret

Block/CMU

and

Brick, Stone, Wood, Pre-Cast

9) Name the 2 most common types of residential framing:

Platform

Balloon

and

10) An elevation is:

- a. The direction a house faces
- b. A 3D picture of the house
- c. A 2D picture of one side of the house
- d. Is a compass direction

11) A truss is an engineered structural roof framing member put together by gussets.

True

False

12) Doors have sashes and panes.

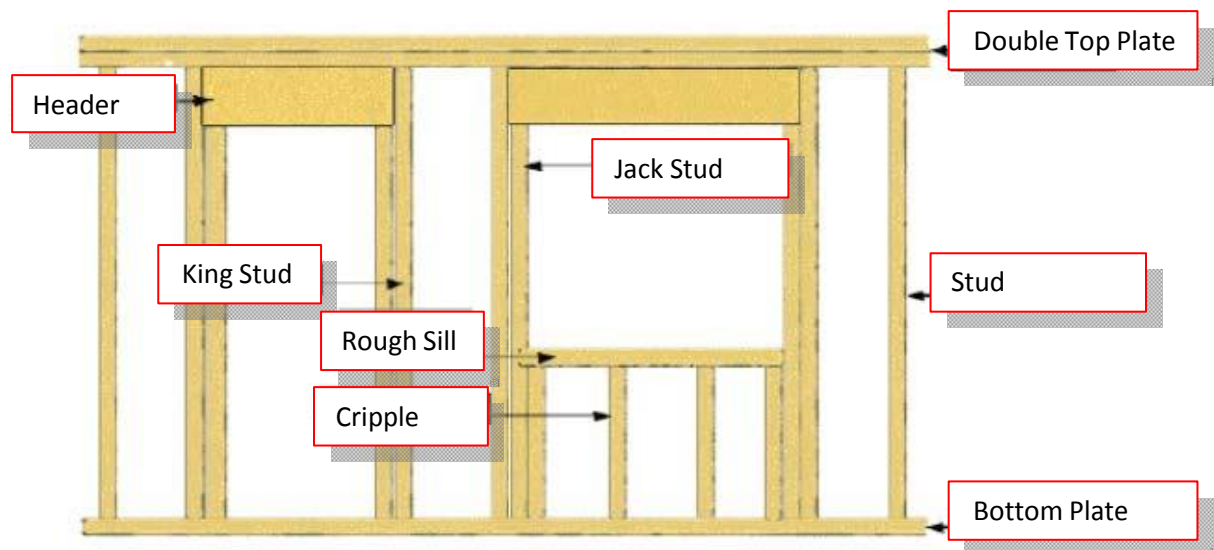
True

False

13) What is a header?

- a. A vertical structural framing member installed above a window or door opening that carries all the weight above.
- b. A horizontal non-structural framing member installed above a window or door opening that carries all the weight above.
- c. A vertical non-structural framing member installed above a window or door opening that carries all the weight above.
- d. A horizontal structural framing member installed above a window or door opening that carries all the weight above.

14) Fill in the boxes with options listed below:



Jack Stud, Header, Cripple, Stud, Bottom Plate, Double Top Plate, King Stud, Rough Sill

15) A load bearing building member:

- a. Can safely be removed
- b. Lubricates a door hinge
- c. Carries the weight of structures above it
- d. Is usually an interior wall

16) A fenestration is a:

- e. Type of door
- f. Type of window
- g. Hole in the building for pipes
- h. Purposeful hole in the building envelope to place a door or window

17) When you walk into the doorway of a house you step across the?

- a. Threshold
- b. Gateway
- c. Sill
- d. Jamb

18) Name 4 types of windows: Wood, Vinyl, Aluminum, and

Steel, Fiberglass, Glass Block, Glass Block

19) Old windows used \_\_\_\_\_ to keep them from slamming shut.

- a. Springs
- b. Levers
- c. Sash weights
- d. Sash panes

20) New windows are usually installed with a nailing fin.

- True
- False

21) What is deconstruction?

Deconstruction is the systematic dismantling and removal of a structure or its parts to salvage and harvest the components, with the purpose of reusing and/or recycling these reclaimed materials and commodities for their maximum value.

22) The 3 components of the Triple bottom line are:

- a. Social, Economic, and Creative
- b. Social, Economic, and Environmental
- c. Economic, Creative, and Environmental
- d. Social, Creative, and Environmental

23) The triple bottom line approach is ultimately a focus on:

- a. Sustainability
- b. Confidentiality
- c. Responsibility
- d. Municipality

24) Two types of deconstruction are:

- a. Demolition and salvage
- b. Structural and non-structural
- c. Structural and implosion
- d. Renovation and skimming

25) Which of the following could be a **barrier** to deconstruction?

- a. Deconstruction is good for the environment
- b. Deconstruction puts money into the community
- c. Demolition waste is inexpensive to dispose of
- d. Demolition takes longer

26) What things can we do to stop the linear cycle for construction debris?

- a. Put trash in the landfill
- b. Recycle and reuse
- c. Build less
- d. Burn our trash on sites

27) Which is a benefit of deconstruction over demolition?

- a. Employs less people
- b. Sends more garbage to the land fill
- c. Is better for the environment
- d. Is faster

28) What one step does a licensed contractor need to do prior to pulling a demolition permit?

- a. Disconnect the utilities
- b. Abate lead and asbestos
- c. Open hole inspection
- d. Environmental assessment

29) What are 2 materials that generally have a salvage value?

- a. Asphalt shingles, stucco
- b. Wood, metal
- c. Metal, concrete
- d. Concrete, plaster

30) The first step of structural deconstruction generally consists of doing 2 things; they are:

- a. Roof removal, window removal
- b. Abatement, window removal
- c. Clean up, roof removal
- d. Abatement, clean up

31) The chimney should be removed:

- a. In sections starting at the top
- b. First
- c. Last
- d. In sections starting at the bottom

- 32) The term “carbon footprint” refers to:
- a. The amount of greenhouse gases emitted by and individual in a year
  - b. The amount of carbon we can salvage from a structure
  - c. The amount of carbon dioxide emitted due to the the consumption of fossil fuels by a particular person, group, etc
  - d. The amount of pollution in the air and ground
- 33) When doing a full structural deconstruct, the contractor should disassemble the house in a certain order. Out of the options below which would be the best order?
- a. Window and door removal, appliance and fixtures, abate and clean up, exterior and interior finishes, walls and floors, roof removal
  - b. Abate and clean up, exterior and interior finishes, appliance and fixtures, window and door removal, roof removal, walls and floors
  - c. Abate and clean up, appliance and fixtures, window and door removal, interior and exterior finishes, roof removal, walls and floors
  - d. Interior and exterior finishes, abate and clean up, appliance and fixtures, window and door removal, roof removal, walls and floors
- 34) Which of the following is a way to reduce the “carbon footprint” during the deconstruction process?
- a. Working lead safe
  - b. Using heavy machinery
  - c. Using diesel generators
  - d. Using well maintained equipment
- 35) Diversion rate refers to:
- a. A general guideline to build by
  - b. The amount of money that salvaged materials can be sold for after calculating costs
  - c. The percentage of material removed that was salvaged as opposed to disposed of
  - d. An equation used to calculate the capacity of a sewer pipe
- 36) What does LEED stand for?
- a. Leadership in Environmental and Economic Decision
  - b. Leadership in Energy Efficient Design
  - c. Leadership in Energy and Environmental Design
  - d. Leadership in Energy Equation Diagrams



37) LEED provides a guideline and awareness in sustainable building practices.

True

False

38) Name three characteristics that affect salvage value.

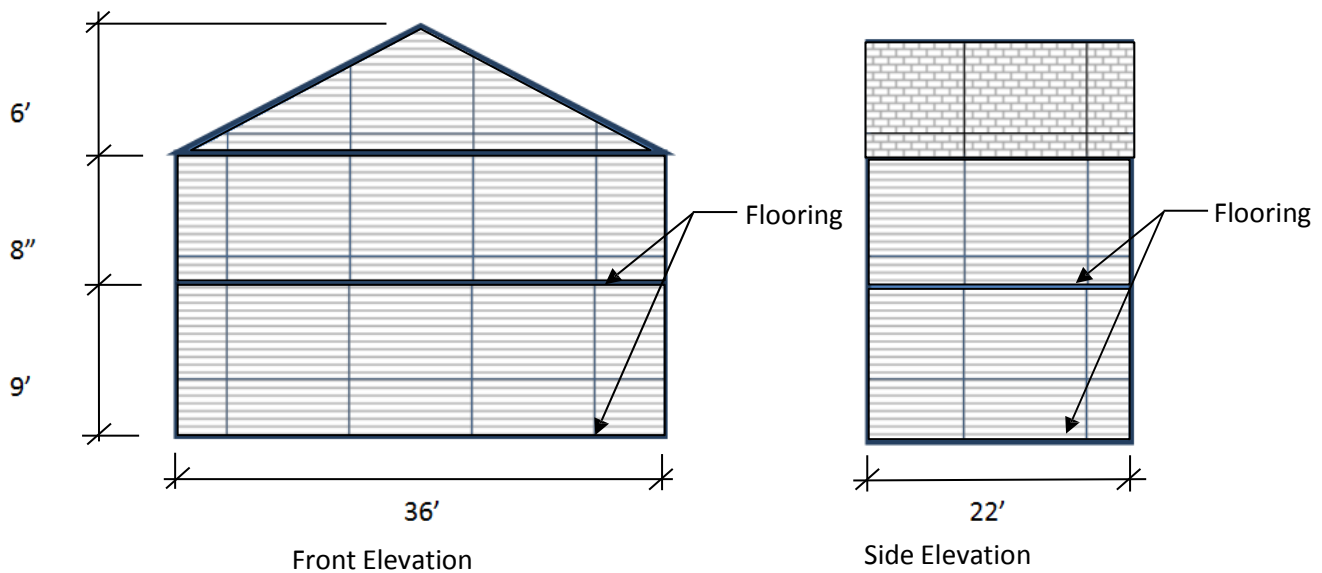
1. Condition Any other reasonable answers accepted
2. Quantity
3. Demand

39) How many square feet of flooring are in the house below?

1584 SF

40) How many square feet of siding are on the house below?

2188 SF



G

## DECONSTRUCTION WORKER TRAINING

## MATH PRE/POST TEST

 Name: Answer Key Date: \_\_\_\_\_

This pre-test is for evaluation purposes only. Do your best. If you do not know how to solve the problem, move on to the next question. Show all of your work, and do not erase.

You may use a calculator to answer the following questions. Answers may be expressed in decimal or fraction form.

1)  $8 \frac{1}{2}''$

$17 \frac{3}{4}''$

$+ 23 \frac{3}{8}''$

$49 \frac{5}{8}$  or 49.625

2)  $23 \frac{1}{4}''$

$- 7 \frac{1}{8}''$

$30 \frac{3}{8}$  or 30.375

3) 23.25

$\times 12.75$

36

4)  $350/40 = 8.75$

5)  $3/8 \times 120 = 45$

6) How many inches are in 5 feet? 60"

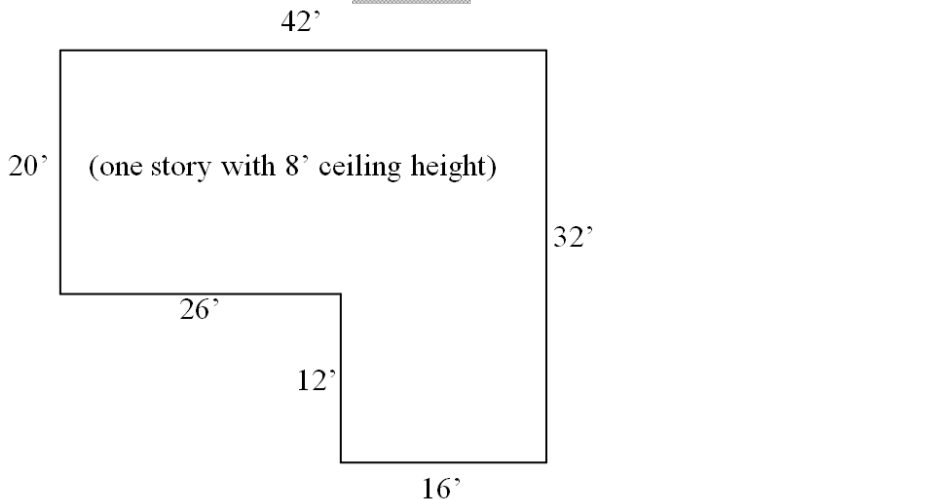
7) One square foot equals how many square inches? 144 sq. in.

8) What is the perimeter of the house diagrammed below? 148 feet

9) What is the area of the house diagrammed below? 1,032 square feet

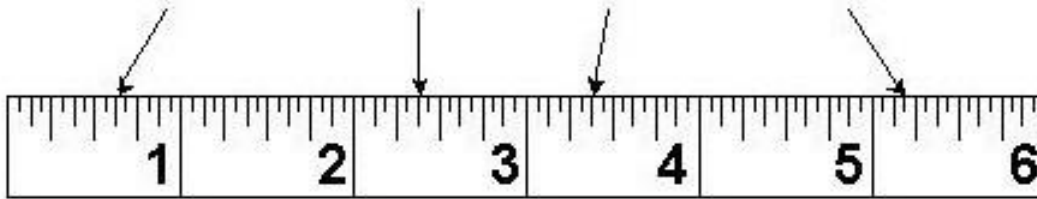
10) What is the volume of the house diagrammed below? 8,256 cubic feet

11) What is 75% of 2,400? 1,800



Write in the measurement indicated by the arrow pointing at the tape measure.

12)  $\frac{5}{8}$ "      13)  $2\frac{3}{8}$ "      14)  $3\frac{3}{8}$ "      15)  $5\frac{3}{16}$ "



16) If you have a piece of lumber that is 6" wide, 2" thick and 6' long, how many board feet would you have?  $6 \text{ BF}$

17) If you have a piece of hardwood flooring that is  $3\frac{1}{2}$ " wide,  $\frac{3}{4}$ " thick and 12' long, how many square feet of flooring would you have?  $3.5 \text{ SF}$

18) If you have a piece of base molding that is  $7\frac{7}{8}$ " tall,  $\frac{5}{8}$ " thick and 14' long, how many linear feet of molding would you have?  $14 \text{ LF}$

19) If it takes 2 minutes for you to salvage one brick (making it ready for resale), and you can resell each brick for \$0.45, how long will it take for you to have \$49.50 worth of brick ready for resale?  $3\text{hrs } 40\text{min}$

20) How much does a 10lb bag of dirt weight?  $10 \text{ lbs}$

**Kansas City Regional  
Property Assessed Clean Energy (PACE) Program**

**Program Manual  
October 2013**

## Table of Contents

Introduction	Page 3
The Case for PACE	Page 5
Program Description	Page 7
Operating Procedures	
Eligible Property Owners	Page 8
Eligible Projects	Page 9
Eligible Contractors	Page 10
Eligible Costs and Program Fees	Page 11
Program Parameters	Page 13
Application Process	Page 13
Appendices	
A. Application	Page 18
B. Terms	Page 23
C. Model Ordinance	Page 24
D. Model Interlocal Agreement	Page ??

## Introduction

The Mid-America Regional Council is a key participant in the EnergyWorks KC regional partnership whose mission is to transform the energy efficiency market in the metropolitan region. The partnership has worked to accomplish this task through policy changes and development of programs, capacity, and tools that will increase the demand for energy efficiency.

In 2012, the MARC Board authorized a study to assess the feasibility of creating a Property Assessed Clean Energy (PACE) program in the Kansas City region. In general terms, PACE provides a funding mechanism for energy efficiency and renewable energy improvements to existing commercial properties. Local governments establish PACE Districts, which are operated by a separate appointed board or by that local government. The boards issue municipal revenue bonds or locate traditional sources of capital, and then make loans to property owners to fund energy retrofit projects. Property owners volunteer to participate in the program, and once projects are approved for lending, a contractual assessment between the property owner and the Clean Energy Development Board is placed on the property as security for the bonds or loans. Owners repay the loan through the special assessment that is included in their property tax bills, typically over a 10- to 20-year term. The approach is entirely market based and each property owner in the district, which can cover more than one jurisdiction, can voluntarily opt into the program.

The initial study found that PACE is successful in other parts of the country and could offer many opportunities to commercial entities in our region. MARC has since continued that work, meeting with cities and counties in the metropolitan area to further evaluate interest and craft a business plan in hopes of developing one or more PACE programs.

Under Missouri statutes, a Clean Energy Development Board is established as a separate political subdivision that has the authority to enter into contracts with property owners to levy special assessments for energy efficient or renewable energy improvements to pay off bonds or loans issued for that purpose. Kansas has not yet approved enabling legislation for PACE. While no state statute regarding PACE financing exists in Kansas, communities could authorize the mechanism through their home rule authority.

In both Kansas and Missouri, cities and counties could cooperate on all aspects of a PACE program or only certain aspects of the program, such as the issuance of bonds, energy audits, qualification of applicants and education about PACE.

Generally, city staff and economic development professionals are supportive of the idea of providing PACE financing in the Kansas City region. Missouri communities are more eager given that the state has already adopted enabling legislation.

However, one question is consistent: How can such a program be established, managed and administered in the region as efficiently and effectively as possible? The initial approach being considered is that the Mid-America Regional Council could play such a role.

This document serves as an initial program manual that can and likely will be revised as the program becomes operational and responds to needs. It details the program terms governing all program participants, including property owners and lenders. By submitting an application, applicants warrant that they have read this handbook in its entirety, and that they understand and agree to the terms set forth herein.

### **Program Goals**

The Kansas City Regional PACE program will help property owners of improved real property make principled investments in the long-term health of the local, state, and national economy and global environment by providing a long-term financing mechanism for energy conservation improvements.

By enabling property owners to take responsible energy conservation actions, the program will allow them to reduce their utility bills. At the same time it boosts the local economy through workforce job creation and economic development.

## The Case for PACE

States across the country that have authorized the use of PACE financing recognize that stimulating the market for cost-effective energy efficiency upgrades in commercial buildings is a public purpose with multiple benefits. A PACE program has the potential to increase property values, create jobs, protect the tax base, increase local economic activity, safeguard the environment, and promote the general welfare of the people of the Kansas City region.

The list of advantages of using PACE for energy efficient upgrades is extensive.

### The Business Case

#### Financial

- ❑ Potential for lower electric, gas and water utility bills
- ❑ Improvements to property can be made with no or low up-front costs and can be financed over an extended period of time
- ❑ Assessment attaches to property and can transfer to new owner with property sale
- ❑ PACE improvements may increase property value
- ❑ Property assessment may be off balance sheet, preserving capital for core business investments
- ❑ Long-term payback, up to 20 years, allows for greater return on investment
- ❑ For managed properties, reduced tenant turnover as a result of more comfortable and healthy indoor environment
- ❑ Improvement costs and benefits align under most lease structures (e.g. property tax pass-through to tenants)
- ❑ List of contractors may be vetted to promote quality improvements

#### Environmental

- ❑ Improved indoor air quality
- ❑ More comfortable buildings
- ❑ Lower carbon footprint

### The Case for Cities and Counties

- ❑ A PACE program encourages and supports shifting to greater efficiency and renewable energy.
- ❑ The program offers a streamlined clearinghouse for information, providing tools and resources to property owners that will enable them to take action.
- ❑ By implementing a PACE program, communities invest in local job creation and retention and reduce environmental impacts.
- ❑ Priority lien position in Missouri creates secure financing mechanism and general fund protection. As of this writing, the assessment would not be a priority lien in Kansas.



### **Benefits to Contractors**

- ❑ Increased number of local jobs created and retained as a direct result of funding existing building retrofits, particularly in the renewable energy and construction fields
- ❑ Program marketing and outreach (e.g. local government's PACE program website) provides source of customer lead generation

### **Benefits to Mortgage Lenders**

- ❑ Reducing utility bills increases property owner's ability to make mortgage payments.
- ❑ Improvements financed by PACE can decrease operating costs, increase net operating income, and can therefore increase the value of the property.
- ❑ PACE projects enhance the lender's collateral by improving the property.
- ❑ Unless altered by the assessment contract, in the event of default, the full amount of the assessment will be due.
- ❑ Purchasing the PACE bonds might be an investment opportunity for the existing mortgage lenders, who could now offer what is essentially a new "green" financial product to their customers.

## Program Description

The Kansas City Regional PACE Program encompasses *(insert jurisdictions here)*.

Eligibility requirements are laid out beginning on Page 8 of this document, but in general:

- ② The cost of the energy improvements will be paid for in energy cost savings over the life of the assessment. This requirement improves the participant's debt-to-income ratio, increasing the participant's ability to repay PACE assessments and other debt, such as mortgage payments.
- ② The term of the assessment will not exceed the useful life of the improvements, better ensuring a property owner's ability to repay throughout the life of the PACE assessment. (It is important to note that the useful life of the measure often exceeds the assessment term.)

Financing is available to commercial applicants with a minimum project amount of \$5,000. The amount available for financing is based on the value of the property, and the assessment stays with the property.

There are several ways to structure PACE financing, including the open market approach where investors invest in individual PACE projects and the pooled bond approach in which projects are aggregated and funded through a subsequent bond issuance. There are other PACE models that are funded through individual micro-bonds similar to open market programs, however, these bonds are either purchased exclusively by a single private entity or the local government (i.e., The Sonoma County program) rather than through a variety of financial institutions. In the open market model, rates and terms are negotiated between the lender and property owner and determined by the credit quality of the individual building with the added security of the senior PACE assessment. The pooled bond allows funders to spread risk across a portfolio of projects so that the rate is determined by the size and diversity of the pool as well as the credit quality of the buildings in that pool. The following section discusses the feasibility of issuing a pooled bond.

The repayment obligation then is secured by a senior lien on parity with general taxes in Missouri; however, it may be of a lesser lien priority in Kansas. In all cases, the obligation is expected to be repaid on the same cycle and with the same process as are property taxes.

## Operating Procedures

### Eligible Property Owners

Property owners may be individuals, associations, business entities, cooperatives, and virtually any owner who pays real property taxes. All financed properties must be located within the Clean Energy Development Board financing district. Participating counties, cities, and incorporated towns or villages will be identified on the Program website. Additionally, certain eligibility criteria must be satisfied. Financing could be approved if the following criteria are met:

- ❑ The property must be a non-residential property as defined as (1) a property for which the primary use is not residential or (2) a property used for multi-family housing with five or more units.
- ❑ Property title is vested in the applicant(s), without federal or state income tax liens, judgment liens, or similar involuntary liens on the property.
- ❑ Property owner is current on property taxes for all properties owned.
- ❑ Property owner is not in bankruptcy and the property is not an asset in a bankruptcy proceeding.
- ❑ Property owner is current on all mortgage(s).
- ❑ Improvement costs are reasonable to property value. As a guideline, proposed improvements should not exceed 10 percent of current market value. If the proposed project exceeds this guideline or otherwise does not appear prudent when compared to the property's value, the program manager may require additional information supporting both the reasonable relationship of the improvements to the property, and information related to the ability of the property owner to repay. If the property is unencumbered by a lien (property is owned free and clear), the applicant may submit for a project up to 50 percent of the property's market or appraised value, whichever is higher (i.e., the project to value ratio may be greater than 10 percent but cannot exceed 50 percent). These projects will be evaluated on a case-by-case basis.
- ❑ The property must have a physical building occupancy rate of 50 percent or higher. If the occupancy rate is not at this level, the program manager, in concert with the Board, can evaluate the merits of the application.
- ❑ Mortgage-related debt plus program financing must not exceed 70 percent of the estimated market value of the property.
- ❑ Total annual property taxes and assessments due on the property cannot exceed 5 percent of the property's market value, as determined at the time of approval of the assessment contract.

### Eligible Projects

PACE financing is intended principally for retrofit activities to replace outdated, inefficient equipment, and to install new equipment or site improvements that reduce energy consumption, produce, renewable energy, or reduce energy through water conservation.

The property owner must have an audit conducted on the property that corresponds to the types of authorized improvements the owner wants to finance, and those authorized improvements must appear as identified opportunities or recommendations in the resulting audit report. The program reserves the right, on a case-by-case basis, to review and approve improvements that do not appear as an identified opportunity or recommendation in the report.

An eligible energy efficiency improvement project or renewable energy improvement project, or a combination of the two, must be \$5,000 or greater. The savings from the project must exceed the cost of the improvements over the life of the improvement.

Energy Efficiency Improvement means any acquisition, installation, or modification on or of publicly or privately owned property designed to reduce the energy consumption of the property, including, but not limited to:

- a) insulation in walls, roofs, attics, floors, foundations, and heating and cooling distribution systems;
- b) storm windows and doors, multi-glazed windows and doors, heat-absorbing or heat reflective windows and doors, and other window and door improvements designed to reduce energy consumption;
- c) automatic energy control systems;
- d) heating, ventilating, or air conditioning units and distribution system modifications and replacements;
- e) caulking and weather-stripping;
- f) replacement or modification of lighting fixtures to increase energy efficiency of the lighting system without increasing the overall illumination of the building unless the increase in illumination is necessary to conform to applicable state or local building codes;
- g) energy recovery systems;
- h) daylighting systems;
- i) green infrastructure; and,
- j) any other system eligible for funding under the federal Qualified Energy Conservation Bonds or federal Clean Renewable Energy Bonds.

### Ineligible Projects

Those fixtures and equipment that are not attached to the real property or building and can be easily removed are not eligible for financing through the program (for example, screw-in fluorescent light bulbs.) Any projects that cannot be explained in terms of industry standard engineering or scientific principles are also not eligible.

### Eligible Contractors

Only contractors who have registered with the program manager (“Registered Contractors”) may pcomplete program-financed installation work. “Registered Contractors” must register with the program and provide evidence that they meet all applicable state and city or county licensing requirements, including insurance and/or bonding requirements. They must also agree to all terms and conditions of the program. A contractor may register as a “Registered Contractor” by contacting the Program and providing the information required, but is not “registered” until the program approves that registration.

If a contractor is required to have a contractor’s license for a particular type of work (e.g., electrical, mechanical, etc.) in that city or county, a registered contractor with that license must be used to install that improvement. If a registered contractor without the correct license uses a subcontractor with the correct license, then the subcontractor’s license information must be provided and the subcontractor must also register with the program. All solar PV and solar thermal systems must be installed in conformance with the manufacturers’ specifications and with all applicable electrical and building codes and standards.

There are two primary types of contractors that may participate in the program: auditors and installation contractors.

The commercial building energy audit market is fragmented, with no universally accepted standards for auditors. Property owners are encouraged to select an auditor with the experience, skills, and accreditation appropriate for their building and project type, provided that the auditor must be a “qualified energy auditor” who can meet Missouri Department of Natural Resources certification requirements.

The program encourages applicants to do research and receive bids from multiple contractors before signing a contract. Neither the board nor the program manager is responsible for determining the appropriate equipment, price or contractor for the property. By establishing these contractor eligibility criteria, the program is not recommending a particular contractor or warranting the reliability of any installer. The program is a financing program only. Neither the board nor the program manager will participate in the resolution of any dispute between applicants or their installers or equipment manufacturer.

## Eligible Costs and Program Fees

### *Project Costs*

Eligible costs of the energy efficiency improvements include the cost of equipment and installation. Installation costs may include, but are not limited to, energy evaluation consultations, labor, design, drafting, engineering, permit fees, and inspection charges.

The installation of energy savings improvements can be completed by a registered contractor of the property owner's choice meeting the criteria outlined earlier. Eligible costs do not include labor costs for property owners that elect to do the work themselves.

Property owners who elect to engage in broader projects – such as a business remodeling – may only receive financing for that portion of the cost of retrofitting existing structures with energy and water conservation improvements. Repairs and/or new construction do not qualify for PACE financing, except to the extent that the construction is required for the specific approved improvement. Repairs to existing infrastructure, such as water and sewer laterals, are considered repairs and are not eligible.

The value of expected rebates, but not the value of expected tax credits, will be deducted from PACE financing. Additionally, the timing of PACE financing and rebates should be carefully reviewed by the owner to satisfy the total project cost.

### *Program Fees*

The following program fees will be the responsibility of the property owner. The annual assessment fee will be included on the annual tax statement from the county treasurer. The other fees must be paid at the time they are incurred.

- a. Title costs, including title insurance, where required. Projects greater than \$500,000 will require title insurance.
- b. Recording fee for documents required to be recorded by State law.
- c. Assessment collection and processing costs will be added to the annual assessment on property tax bills unless they are waived by the county.
- d. Multiple disbursements will be subject to a fee of \$150 per disbursement and interest will begin to accrue on the entire assessment amount at the time of the first disbursement. There are two conditions under which property owners can receive multiple disbursements. The first is for installing an improvement \$25,000 and greater. The second condition under which multiple disbursements can be received is when a project entails multiple improvements and/or multiple contractors. Payment can be made to any contractor who has completed his portion of the work or who has completed the improvement and provides a final invoice and a final permit for that work.

### *Refunds of Costs and Fees*

If an applicant exercises the Right to Cancel within the three-day rescission period following assessment contract signing, the costs expended by the program will be refunded, with the exception of the initial application fee. No fees or costs will be refunded for an application withdrawn before assessment contract signing or after the three-day right of rescission period.

### *Application Fee*

A one-time, non refundal fee of \$50 will be paid at the time of the initial application.

### *Loan Origination Fee*

A one-time loan origination fee of 5 percent of the total amount of the project is required, with the amount of such fee capped at \$5,000.

## **Program Parameters**

### *Minimum Energy Financing Amount and Duration of Assessment*

Contracts are available for up to 20-year terms to accommodate a wide range of efficiency improvements and renewable energy investments. The minimum amount for a PACE project is \$5,000.

### *Maximum Energy Financing Amount*

Improvement costs must be reasonable to property value; however, there is no fixed maximum “cap” for a contract. All applications must be reviewed and approved by the board.

### *Lender Consent*

To participate in the program, commercial and industrial property owners must obtain lender consent from all lenders having existing mortgage debt on the property, including consent to the subordination of their security to the lien of special tax assessments. Signed lender consent forms must be provided during the second stage of processing the application.

### *Assessment Interest Rate*

The program manager will set the interest rate for a contract at the time the program and property owner enter into the assessment contract. The interest rate will be fixed at that point and will not go up.

### *Property Assessment Lien*

All property owners must sign and notarize the assessment contract and implementation agreement (“contract documents”). Upon execution of the assessment contract, the program manager records an assessment lien against the property through the county assessor. The lien will be for the full amount of the assessment on the property that secures the assessment, plus a pro rata share of closing costs if a pooled bond or all closing costs if a micro bond is issued. The assessment will include a component of interest on the amount disbursed to the property owner that accumulates from the disbursement date through the next term of tax assessment.

The assessment agreement is sent to the appropriate county collector who collects special assessments in the same manner and with the same procedures as ad valorem real property taxes.

### *Delinquent Assessment Collections*

Delinquent assessments will be collected using the laws and powers authorized under state statutes for collecting property taxes and assessments. Failure to pay a scheduled assessment will make all assessments accelerate and become due.

## **Application Process**

The Kansas City Regional PACE Program provides financing for the installation of energy efficiency improvements and renewable energy generation projects permanently fixed to real property within the district. Property owners repay the program through an assessment on their property payable in annual installments on their property tax bills.

### **A. Project Scoping**

The first step in the process is project scoping. By participating in this program, property owners are making a financial investment; this decision should be made based on both the efficiency and the cost effectiveness of the improvements. Conducting an energy audit will help property owners assess energy efficiency and renewable energy opportunities for their property. Accordingly, an energy audit is required to participate. Costs incurred to conduct onsite audits or surveys may be included in the application for PACE financing.



## **B. Program Application**

The property owner completes an application form. The property owner submits the application together with its required attachments and a \$50 application fee. Applications will be processed once completed on first-come, first-served basis.

## **C. Application Review**

During the application review process, program staff verifies that:

- ☐ the application is complete and accurate;
- ☐ all eligibility requirements are met; and,
- ☐ program funding is available.

Within 15 business days of receipt of an application, program staff notifies the property owner whether the application is incomplete. An application shall be deemed incomplete if it is missing any information or attachments the property owner is required to provide. All requested documentation must be submitted within 30 days.

An application shall be submitted to the Clean Energy Development Board for approval if program staff have verified that the application is complete and accurate, meets all requirements, and funding is available. An application shall be deemed denied if program staff cannot verify that the application meets all requirements.

With respect to an application to finance a renewable energy generation system(s) other than solar (such as wind or geothermal) or a custom energy efficiency measure(s) (such as a combined heat and power system cogeneration system), or to finance an emerging technology ("Custom Measures"), staff reserves the right to require the appropriate engineering documentation and energy studies showing the energy savings and/or energy generation capabilities of the proposed project. The program may also charge an additional administrative fee for this technical review to be discussed with the property owner before proceeding.

## **D. Assessment Contract and Implementation Agreement**

All property owners must sign and notarize the assessment contract and the implementation agreement. Four business days from the execution of the contract documents, staff will issue a Notice to Proceed to the property owner, and the program will place a lien for the full amount of the assessment on the property that secures the assessment.

### **E. Assessment Lien**

Upon execution of the assessment contract, the program records an assessment lien against the property. The lien will be for the full amount of the assessment on the property plus closing costs if bonds are issued that secures the assessment.

### **F. Installation of Improvements**

Property owner enters into a contractual arrangement directly with a registered contractor for improvements. All work is subject to the appropriate jurisdiction's permitting and inspections and all other applicable federal, state, and local laws and regulations. All work must be completed, including the final inspection, within 90 days of execution of the assessment contract. The property owner and the program manager may agree to an extension of this completion date for good cause.

### **G. Progress Payments/Multiple Disbursements**

If the maximum assessment amount is \$25,000 or greater, the property owner may request in writing that the program make progress payments prior to the completion of the project. An applicant may request one or more interim disbursements if 75 percent of materials have been delivered and secured onsite. Following an inspection to verify this, 75 percent of the material on a cost basis has been delivered and secured, the program will fund up to 50 percent of the total approved amount.

### **H. Final Inspections & Disbursement of Financing**

After improvements are completed, the property owner must contact the local permitting agency for a final inspection and final permit. The property owner notifies the program that all work has been completed and submits final documentation: final permit, invoices showing all costs, less any rebate amounts, and a Request for Disbursement form including signatures by contractors.

Checks will be prepared in accordance with the disbursement cycle. The amount disbursed will be the lesser of (i) the maximum assessment amount provided in the assessment contract or (ii) the actual costs.

### **Application**

See Page 17.

## Appendices

A. Application	Page 17
B. Terms	Page 23
C. Model Ordinance	Page 24

## Appendix A: Application

### Section 1: Eligibility Requirements

- ☐ Applicant(s) is/are legal owner of the property described in the Application (the “Property”).
- ☐ Property is developed and located within the district.
- ☐ Property Owner is current on all property taxes for all properties owned within the district.
- ☐ Property Owner is current on all mortgage(s).
- ☐ Property Owner is not in bankruptcy, and the property is not an asset in a bankruptcy.
- ☐ There are no federal or state income tax liens, judgment liens, or similar involuntary liens on the Property.
- ☐ Improvement costs are reasonable for the scope of the proposed project and to Property value.
- ☐ Requested Financing Amount does not exceed 10 percent of the Property Market Value.
- ☐ The lien to value ratio (excluding the Requested Financing Amount) does not exceed 100 percent.
- ☐ Total annual property taxes, plus current assessments, including projected annual PACE assessments due on the property do not exceed 5 percent of the property’s market value, as determined at the time of approval of the contractual assessment.
- ☐ Property has a physical occupancy rate of 50 percent or more.
- ☐ All mortgage lenders must sign a lender consent form for this application to be approved.

## Section 2: Applicant Information

Property owner(s) legal name(s) as they appear on property tax records		
Owner 1	Last 4 digits of SSN or TIN	List all parcel numbers owned
Owner 2	Last 4 digits of SSN or TIN	List all parcel numbers owned
Owner 3	Last 4 digits of SSN or TIN	List all parcel numbers owned
Owner 4	Last 4 digits of SSN or TIN	List all parcel numbers owned

Property owner contact information		
Name	E-mail Address	Daytime telephone number

Physical property address and assessor's parcel number (Site of improvements)		
Street Address	City and State	Zip Code
Assessor's parcel number for subject property		

## Section 3: Property Information

Property Type (Check all that apply.)
<input type="checkbox"/> Agricultural
<input type="checkbox"/> Commercial
<input type="checkbox"/> Industrial
<input type="checkbox"/> Multi-Family(5+ units)
<input type="checkbox"/> Other _____

#### Section 4: Proposed Improvement Project Information

Proposed Improvement Project (Add additional pages if necessary.)		
Energy analysis method?	How is property currently heated?	How is property currently cooled?

<b>1.*Proposed improvement</b>		Type of improvement (check one)	
Quantity and/or size. Indicate number of windows and doors separately.		Units	
Proposed improvement make and model		Proposed improvement specifications	
Proposed Improvement Cost	Less rebate	Plus estimated permit fee	Net proposed improvement cost

<b>2.*Proposed improvement</b>		Type of improvement (check one)	
Quantity and/or size. Indicate number of windows and doors separately.		Units	
Proposed improvement make and model		Proposed improvement specifications	
Proposed Improvement Cost	Less rebate	Plus estimated permit fee	Net proposed improvement cost

<b>3.*Proposed improvement</b>		Type of improvement (check one)	
Quantity and/or size. Indicate number of windows and doors separately.		Units	
Proposed improvement make and model		Proposed improvement specifications	
Proposed Improvement Cost	Less rebate	Plus estimated permit fee	Net proposed improvement cost

\*For each proposed improvement, provide not just the contractors' bids and specifications, but also the energy audit report, the written mortgage lender acknowledgement form.

<b>Total Project Costs (sums from above)</b>			
Proposed improvement cost	Less rebates	Plus estimated permit fees	Net proposed improvement cost

Itemized estimated costs of improvement(s) – Documentation required*	
Construction contract(s) (bid price for cost of materials and labor Less any applicable rebates), excluding permit fees:	\$ _____
Contingency allowance (optional) (10% of above-single disbursement contracts under \$25,000 only)	\$ _____
Onsite energy and water survey/analysis costs	\$ _____
Professional services (appraisal, drafting, engineering, project Management and/or plan preparation costs	\$ _____
Permit Fee _____ _____ Permit included in bid	\$ _____
Total	\$ _____
<b>Requested Financing Amount</b>	<b>\$ _____</b>

Requested assessment payment period
_____ 5 years
_____ 10 years
_____ 15 years
_____ 20 years

**\*Required documentation**

\_\_\_\_\_ Organizational documents if property owner is not on title as in individual, i.e. trust documents showing the “powers of the trustee” to encumber the property.

\_\_\_\_\_ Energy audit reports.

\_\_\_\_\_ Contractor’s bid(s) or proposal(s), which include the contractor’s name and license number (unless self-installing).

\_\_\_\_\_ Copies of all rebate applications relating to the improvements.

\_\_\_\_\_ Statements, purchase orders or other evidence of cost for items not covered by the contractor’s bid or proposal.

\_\_\_\_\_ Current mortgage statements, transaction histories, or other evidence that all mortgages or any other loans secured by the property are current.

\_\_\_\_\_ Signed lender acknowledgement form from lender.

Program staff may request additional information and documentation they think is necessary to prudently administer the program. Such information and documentation could include without limitation additional comparison bids and information related to the market value of the property.

**Project Verification Documents**

	Initial Here	
A copy of a signed final permit inspected by the city’s building Inspection staff.	_____	_____
A copy of the final invoice from all contractors. Payment is disbursed after completion of work.	_____	_____
For a single disbursement for contracts under \$25,000, one payment is issued after all contractors’ work is completed.	_____	_____
Property is subject to an annual administrative assessment.	_____	_____
Property is subject county collector’s fee.		
Prepayment is accepted for a total remaining balance, however no partial prepayment is allowed.	_____	_____
Accrued interest-Interest begins accruing on the bonded amount at the time of disbursement.	_____	_____



Important Notations	
	Initial Here
Work cannot begin until Notice to Proceed is issued.	_____
Payment is disbursed after completion of work.	_____
For a single disbursement for contracts under \$25,000, one payment is issued after all contractors' work is completed.	_____
Property is subject to an annual administrative assessment.	_____
Prepayment is accepted for a total remaining balance, however no partial prepayment is allowed.	_____
Accrued interest-Interest begins accruing on the bonded amount at the time of disbursement.	_____

An owner cannot cancel the process after the assessment contract is recorded. However, in the event a property owner cancels financing prior to this time, all expenses incurred by the program for will be the responsibility of the applicant. The program will terminate the lien evidenced by recordation of the Notice of PACE benefit assessment upon receipt of reimbursement from the applicant for these expenses.

## Appendix B: Terms

The following table summarizes the Program's major bond and legal documents.

### Major Bond/Legal Documents

Document	Description
Form of Lender Acknowledgement	Relates to a property owner's existing mortgage lender/lienholder, whereby that existing lender/lien holder (i) acknowledges the levy of special taxes/assessments and the creation of the special tax/assessment lien and (ii) agrees that the proposed special tax/assessment lien will not constitute an event of default or trigger the exercise of any remedies under the loan documents in force between the existing lender/lienholder and the property owner.
Assessment Contract	Document pursuant to which the property owner agrees to the levy of the PACE benefit assessment for purposes of the issuance by the Municipality of a PACE bond to a project lender.
Notice of PACE Benefit Tax Lien	Document, which is recorded in the real property records to provide notice of a lien to secure payment of special taxes/assessment on the property.
Form of Bond Purchase Contract	A contract between the district and the lender, pursuant to which the lender (i) agrees to purchase a PACE bond issued by the Municipality and (ii) makes representations and warranties that it is a "qualified investor". This contract also reflects the basic financing terms agreed between the lender and the property owner.

## Appendix C: Model Ordinance

BILL NO. \_\_\_\_\_

SPONSORED BY:

ORDINANCE NO. \_\_\_\_\_

AN ORDINANCE ESTABLISHING ARTICLE \_\_\_\_\_ (CLEAN ENERGY DEVELOPMENT BOARD) AND AMENDING CHAPTER \_\_ OF THE CODE OF THE CITY OF \_\_\_\_\_ BY PROVIDING FOR PROPERTY ASSESSED CLEAN ENERGY FUNDING FOR SPECIFIED PURPOSES.

**WHEREAS,** the development, production, and efficient use of clean energy and renewable energy, as well as the installation of energy efficiency and renewable energy improvements to publicly and privately owned real property, will create jobs for residents of the City, retain and encourage the expansion of existing businesses, advance the economic well-being and public and environmental health of the City and contribute to the energy independence; and

**WHEREAS,** the 95th General Assembly of Missouri has enacted Sections 67.2800 et seq. RSMo., the "Property Assessment Clean Energy Act" (the "Act"); and

**WHEREAS,** that Act authorizes a municipality, which has adopted a Property Assessed Clean Energy Ordinance, to establish a Clean Energy Development Board ("Board") to initiate and administer a Property Assessed Clean Energy ("PACE") Program, so that owners of qualifying property can access funding for energy efficiency and renewable energy improvements to their properties located in the City; and

**WHEREAS,** the primary intent of funding energy efficiency and renewable energy improvements, pursuant to the Act, is to promote the public purposes described above; and

**WHEREAS,** the City wishes to establish a Board to initiate and administer a PACE Program.

**NOW, THEREFORE, BE IT ENACTED** BY THE BOARD OF ALDERMEN/CITY COUNCIL OF THE CITY/COUNTY OF \_\_\_\_\_, MISSOURI, AS FOLLOWS:

Section 1. The City Code, Chapter \_\_, \_\_\_\_\_, is hereby amended by adding one new Article, to read as follows:

Article \_\_\_\_\_ - Clean Energy Development Board

### Sec 1.1 PURPOSE AND AUTHORITY

- A. Purpose. By and through this Ordinance, the City of \_\_\_\_\_, Missouri (the "City") declares as its public purpose the establishment of a Clean Energy Development Board ("Board") to enable its citizens and the owners of non-residential properties located within the jurisdictional boundaries of any Participating Entity to participate in a Property Assessed Clean Energy Program so that property owners can access funding for energy saving improvements to their properties located within the jurisdictional boundaries of any Participating Entity. The City also desires to provide a vehicle for other municipalities in the State of Missouri to participate in a Property Assessed Clean Energy Program through the expansion of the jurisdictional and geographic boundaries of the Clean Energy Development District, in accordance with the procedures set forth in Sec. 1.3 (E)
- B. Authority. This Ordinance is enacted pursuant the authority granted by the Property Assessment Clean Energy Act, Section 67.2800 *et seq.* RSMo.

### Sec. 1.2 TITLE AND DEFINITIONS

- A. Title. This Ordinance shall be known and may be cited as " \_\_\_\_\_Property Assessed Clean Energy (PACE) Ordinance."
- B. Definitions. Except as specifically defined below, words and phrases used in this Ordinance shall have their customary meanings. As used in this Ordinance, the following words and phrases shall have the meanings indicated.

"Assessment Contract" means a contract entered into between the \_\_\_\_\_ Board and a property owner pursuant to which the property owner agrees to pay an annual special assessment for a period of up to twenty years in exchange for financing of an energy efficiency improvement or a renewable energy improvement by the \_\_\_\_\_ Board.

"Bond" means any bond, note or similar instrument issued on behalf of the \_\_\_\_\_ Board

"Energy Efficiency Improvement" means any acquisition, installation, or modification on or of publicly or privately owned property designed to reduce the energy consumption of such property, including, but not limited to:

  - 1. Insulation in walls, roofs, attics, floors, foundations, and heating and cooling distribution systems;
  - 2. Storm windows and doors, multi-glazed windows and doors, heat absorbing or heat reflective windows and doors, and other window and door improvements designed to reduce energy consumption;
  - 3. Automatic energy control systems;
  - 4. Heating, ventilating, or air conditioning distribution system modifications and replacements;
  - 5. Caulking and weather-stripping;
  - 6. Replacement or modification of lighting fixtures to increase energy efficiency of the lighting system without increasing the overall illumination of the building

unless the increase in illumination is necessary to conform to applicable state or local building codes

7. Energy recovery systems; and
8. Daylighting systems.

"Municipality" means any county, city or incorporated town or village of the state of Missouri.

"Participating Entity" means a city or county adopting an ordinance authorizing participation in the \_\_\_\_\_ PACE Program or an ordinance that is substantially in the same form and containing virtually identical provisions to this ordinance.

"Project" means any energy efficiency or renewable energy improvement.

"Property Assessed Clean Energy Assessment or PACE Assessment" means a special assessment voluntarily agreed to by the owner(s) of and imposed on qualifying property to repay the PACE Board for PACE Funding of energy efficiency and/or renewable energy improvements made to that qualifying property.

"Property Assessed Clean Energy Development Board or Board" means the \_\_\_\_\_ Board formed by the Participating Entity, pursuant to this ordinance and Section 67.2810 et seq. RSMo.

"Property Assessed Clean Energy District or District" means the district in which the PACE Program may operate and that is defined geographically to include the entire area within the jurisdictional boundaries of a Participating Entity as determined by municipal boundary lines, and as may be expanded to other municipalities in accordance with Sec. 1.3(E) below.

"Property Assessed Clean Energy Funding or PACE Funding" means funds provided to the owner(s) of qualified property by the Board for energy efficiency and/or renewable energy improvements.

"Property Assessed Clean Energy Program or PACE Program" means a program established pursuant to the authority granted by Sections 67.2800 et seq. RSMo. (the "PACE Act") by a municipality or multiple municipalities under which property owners can obtain funding for energy efficiency and/or renewable energy improvements on qualifying property.

"PACE District Administrator" means either the Board or an entity, including but not limited to Mid-American Regional Council, with which the Board contracts to initiate and administer the PACE Program.

"Qualifying Property" means real property located in the District.

"Renewable Energy Improvement" means any acquisition and installation of a fixture, product, system, device, or combination thereof on publicly or privately owned property that produces energy from renewable resources, including, but not limited to, photovoltaic systems, solar thermal systems, wind systems, biomass systems, or geothermal systems.

### Sec. 1.3 PACE PROGRAM

- A. \_\_\_\_\_ PACE Board, Creation and Membership. The \_\_\_\_\_ PACE Board, which shall be a political subdivision of the state of Missouri, is hereby established. The Board shall consist at all times of at least three members, and shall include representatives from each Participating Entity. Provided that, if only one entity has adopted an ordinance substantially similar to this ordinance, all three members shall be from the entity first passing this or a substantially similar ordinance. Upon the passage of this ordinance by a second Participating entity, the Board shall be composed of two representatives from each Participating Entity. Upon the passage of this ordinance or a substantially similar ordinance by three or more Participating Entities, each Participating Entity shall have at least one representative on the Board, and Participating Entities with a population in excess of 75,000 shall have two representatives on the Board. In the instance of Participating Entities passing this ordinance or a substantially similar ordinance after the initial passage of this ordinance by a Participating Entity, once three Participating Entities have passed this or a substantially similar ordinance, the member or members (depending on how many members that Participating Entity is authorized hereby) first appointed by each Participating member shall remain a member of the Board and later appointed members' terms shall automatically expire. The members of the initial \_\_\_\_\_ Board shall be appointed by the chief executive official of the Participating Entity, with the advice and consent of that Participating Entity's governing body. Each member shall be appointed for a term of \_\_\_\_\_ years, except that for those Participating Entities with more than one representative, one Board member shall be appointed for \_\_\_\_\_ years and one Board member shall be appointed for \_\_\_\_\_ years. Members of the Board are not required to be residents of the Participating Entity.
- B. Replacement of Members. Upon the death, resignation, or expiration of term of any member of the Board, a replacement shall be appointed by the chief executive official with the advice and consent of the governing body.
- C. Authority. The Board shall oversee the PACE Program in accordance with this Ordinance and the PACE Act and shall have all powers necessary and convenient to carry out and effectuate the provisions of the PACE Act, including, but not limited to the following powers:
  - 1. to adopt, amend, and repeal bylaws which are not inconsistent with Section 67.2800 *et se.* RSMo;
  - 2. to adopt an official seal;

3. to sue and be sued;
  4. to make and enter into contracts and other instruments with public and private entities;
  5. to accept grants guarantees, and donations of property, labor, services, and other things of value from any public or private source;
  6. to employ or contract for such managerial, legal, technical, clerical, accounting, or other assistance it deems advisable;
  7. to levy and collect PACE Assessments under an Assessment Contract with a property owner and to record those PACE Assessments as a lien on the property;
  8. to borrow money from any public or private source and issue bonds and provide security for the payment of the same;
  9. to finance a Project under an PACE Contract;
  10. to collect reasonable fees and charges in connection with making and servicing Assessment Contracts and in connection with any technical, consultative, or project assistance services offered;
  11. to invest any funds not required for immediate disbursement in obligations of the state of Missouri or of the United States or any agency or instrumentality thereof, or in bank certificates of deposit; provided, however, the limitations on investments provided in this subdivision shall not apply to proceeds acquired from the sale of bonds which are held by a corporate trustee;
  12. to take whatever actions necessary to participate in and administer the PACE Program; and
  13. to enter into cooperation contracts with other municipalities, as authorized by Sections 71.210 *et seq.* RSMo., to undertake any or all of portions of the administration of the PACE Program as the parties to that contract shall agree best serves the interests of the contracting parties.
- D. Advisory Committee. The PACE Board may establish a PACE Advisory Committee, composed of individuals with expertise in banking, financial advice and underwriting, energy efficient and renewable energy improvements, construction, sustainable communities and development, public works and facilities or any other area of expertise the PACE Board deems will further the objectives and purposes of the PACE Program. The Advisory Committee shall be composed of at least five (5), but not more than eleven (11) members. Any member of the PACE Board may nominated an individual for membership on the Advisory Committee, but individuals shall become Committee members only upon a majority vote of the members of the PACE Board. The Advisory Committee shall elect a Chairperson, Vice Chairperson and Secretary, each of which shall serve two (2) years terms. The Advisory Committee shall meet as directed by the PACE Board and upon written notice from the Secretary at the call of the Chairperson, given three (3) business days in advance of the meeting. The Advisory Committee's role shall be purely advisory and it shall have no decision making authority with respect to the PACE Program.

- E. PACE District The Participating Entities hereby establish a PACE District in which the Board may operate a PACE Program. The PACE District is initially defined geographically as being all the area within the corporate boundaries of the Participating Entities as they exist on the date of this ordinance and as they may be amended from time to time. It is anticipated that the PACE District will include the corporate boundaries of a minimum of X Participating Entities.
- F. Additions to the District. To promote and facilitate energy efficiency and renewable energy, the Participating Entities and the Board shall make available to other municipalities memberships and participation in the Board, upon the adoption of an ordinance. in a form approved by the Board, electing to join the PACE District and adopting the terms of this Article to the extent that these terms are applicable. Upon delivery of a duly authenticated ordinance to the Board or its designee, that municipality shall become a member of the District and the jurisdictional and geographic boundaries of the PACE District shall thereafter be altered to include the corporate limits of that municipality.
- G. Board Funding. The \_\_\_\_\_ PACE Board shall oversee the PACE Program allowing owners of Qualifying Properties located in the District, who choose to obtains funding for energy efficiency and/or renewable improvements to their property through PACE Funds disbursed and administered by the Board, pursuant to an Assessment Contract. The PACE Funds are available from the Board through financing sources and structures approved and authorized by the Board.
- H. Issuance of Bonds.
  - 1. The Board may issue bonds payable from PACE Assessment revenues and from any other revenues pledged thereto. The bonds shall be authorized by resolution of the Board, shall bear such date or dates, and shall mature at such time or times as the resolution shall specify: provided that, the term of any bonds issued for a clean energy conduit financing shall not exceed twenty years. The bonds shall be in such denomination, bear interest at such rate, be in such form, be issued in such manner, be payable in such place or places, and be subject to redemption as such resolution may provide. Notwithstanding any provision to the contrary under this section, issuance of the bonds shall conform to the requirements of subsection 1 of section 108.170 RSMo.
  - 2. Bonds issued by the Board shall not constitute an indebtedness of the state or any municipality. Neither the state nor any municipality shall be liable on those bonds, and the form of the bonds shall contain a statement to that effect.
- I. PACE Assessments. The total special assessment levied against a property under an Assessment Contract shall not exceed the sum of the cost of the Project, including any required energy audits and inspections, or portions thereof financed through the participation in the PACE Program or clean energy conduit financing, including the costs of any audits or inspections required by the Board, plus all administrative fees, interest, and other financing costs reasonably required by the Board.



Sec. 1.4 PACE Program Administration.

The \_\_\_\_\_ PACE Board shall initiate and oversee or cause to be initiated and overseen the functions of the PACE Program. The PACE Board may act as the PACE Program manager or may contract with a third party, including but not limited to Mid-America Regional Council, to carry out the day-to-day functions of the PACE Program. The PACE Program manager shall:

- I. establish application requirements and provide property owners with an application to apply for PACE Funds;
- J. develop criteria and standards for the approval of Projects submitted by property owners for financing with PACE Funds, including, but not limited to requiring Projects to meet certain energy efficiency standards;
- K. require an initial energy audit conducted by a qualified home energy auditor, as defined in subsection (4) of subsection (1) of section 640.153, RSMo., as a prerequisite to the receipt of PACE Funds
- L. develop criteria and standards to ensure that property owners approved by the Board for PACE Funding have good credit-worthiness or shall otherwise be considered a low risk for failure to meet the obligation of the Program;
- M. review applications and select qualified Projects;
- N. upon finding that there are sufficient resources to complete the Project and that the estimated economic benefit expected from the Project during the financing period is equal to or greater than the cost of the Project, enter into Assessment Contracts with property owners to pay annual special assessments for a period not to exceed twenty (20) years, as specified in the Assessment Contract.
- O. develop a form of Assessment Contract that includes, but is not limited to the following:
  1. a description of the project, including the estimated cost of the project and details on how the project will either reduce energy consumption or create energy from renewable sources;
  2. a mechanism for:
    - (i) verifying the final costs of the project upon its completion; and
    - (ii) ensuring that any amounts advanced or otherwise paid by the Board toward costs of the project will not exceed the final cost of the project;
  3. an acknowledgment by the property owner that the property owner has received or will receive a special benefit by financing a project through the Board that equals or exceeds the total assessments due under the assessment contract;
  4. an agreement by the property owner to pay annual special assessments for a period not to exceed twenty years, as specified in the assessment contract
  5. a statement that the obligations set forth in the assessment contract, including the obligation to pay annual special assessments, are a covenant that shall run with the land and be obligations upon future owners of such property; and
  6. an acknowledgment that no subdivision of property subject to the Assessment Contract shall be valid unless the Assessment Contract or an amendment

thereof divides the total annual special assessment due between the newly subdivided parcels pro rata to the special benefit realized by each subdivided parcel.

- P. provide a copy of each executed Assessment Contract to the County Assessor and County Collector and cause a copy of each such Assessment Contract to be recorded in the real estate records of the Recorder of Deeds;
- Q. perform or cause to be performed any inspection as the Board may deem necessary to verify Project completion;
- R. authorize and disburse the PACE Funds to the property owners; and
- S. receive the PACE Assessments from the County Collector.

#### Sec. 1.5 Adoption of Education and Outreach Program.

The Board may adopt and implement an education and outreach program so that citizens within the PACE District, as may be expanded, are made aware of energy saving opportunities, including the opportunity to fund energy efficiency and renewable energy improvements from PACE Funds.

#### Sec. 1.6 Liability of Municipal Officials; Liability of Municipality.

Notwithstanding any other provision of law to the contrary, municipal officers and municipal officials, including, without limitation tax assessors and tax collectors, are not personally liable to the Board or to any other person for claims, of whatever kind or nature, under or related to a PACE Program, including, without limitation claims for or related to uncollected PACE Assessments. No Participating Entity shall be liable to a property owner for or related to energy savings improvements funded under a PACE Program. The PACE District and the Board shall for all purposes be considered an independent entity and shall not be considered a subdivision of the any Participating Entity or of any future member of the PACE District.

#### Sec. 1.7 Special Assessment Lien

Special assessments agreed to under an assessment contract shall be a lien on the property against which it is assessed on behalf of the Board from the date that each annual assessment under the assessment contract becomes due. Such special assessments shall be collected by the county collector in the same manner and with the same priority as ad valorem real property taxes. Once collected, the county collector shall pay over such special assessment revenues to the Board in the same manner in which revenues from ad valorem real property taxes are paid to other taxing districts. Such special assessments shall be collected as provided in this subsection from all subsequent property owners, including the state and all political subdivisions thereof, for the term of the assessment contract.

Section 2. This Ordinance shall be in full force and effect from and after the date of its passage and approval or upon passage of an ordinance creating a PACE Program by at least XXX other Participating Entities, whichever shall occur earlier

Passed: \_\_\_\_\_

Approved: \_\_\_\_\_

\_\_\_\_\_  
Presiding Officer

ATTEST:

APPROVED AS TO FORM:

\_\_\_\_\_  
City Clerk

\_\_\_\_\_  
City Counselor

## Attachment C

### Bridging The Gap EnergyWorks KC – Final Report

#### **Executive Summary**

WaterWorks! was created to educate residents of Kansas City, MO on the importance of water conservation and to help them reduce their water usage and lower their water bill. Designed with a focus on maximizing gallons of water saved per dollar spent, Bridging The Gap structured its WaterWorks! program around five core elements: professionally installed water ecokits, Do-It-Yourself water ecokits, toilet rebates, rainbarrels/downspout disconnects, and rain gardens.

**Program components:** Over the course of 19 months, the WaterWorks! program promoted water conservation in low income neighborhoods by providing:

- 1600 water-saving ecokits (a high-efficiency showerhead, a kitchen faucet aerator, two bathroom faucet aerators, and a toilet tank bank, installed by a professional at no charge to the resident)
- 5,106 Do-It-Yourself (DIY) versions of the water ecokits, to be installed by the resident
- 1,459 rebates for up to \$100 for the purchase of a high-efficiency toilet with 1.28 gallons per flush or less
- 375 rain barrels
- 27 downspout disconnects
- 12 model rain gardens
- 2 model native gardens

For the three components targeted indoor water usage: DIY ecokits, Installed ecokits and toilet rebates, we were able to conduct some data analysis of before and after effects from citizens' water bills. Downspouts, rain barrels, rain gardens and native gardens were geared toward outdoor water conservation measures, and we did not attempt data analysis. Though downspouts were originally projected to be leading components of the program because of high gallons conserved for dollars invested, their paucity in the targeted neighborhoods and citizen resistance to disconnecting them caused us to shift our focus to more successful elements fairly early in the project.

WaterWorks! overall proved to be a highly successful initiative, both in terms of its educational outreach and in the sheer number of water-saving units provided to Kansas City residents. The program was so well-received by the public (especially ecokits and rain barrels) that water conservation inventory was depleted well before the grant period expired. Ultimately, over 6,800 citizens participated in WaterWorks!, a high proportion of them in the six low-income neighborhoods originally targeted by EnergyWorks KC, but ultimately widely dispersed across the city, as shown by the GIS mapping in Appendix B.

## Quantitative Results (see Appendix A for more detail)

Component	Unit Cost	Gallons of Water Saved per Unit	Gallons Saved per Dollar Spent	% of Reviewed Households w/decreased bills	Reviewed Households Ave. bill decrease
DIY Ecokit (if installed)	\$11.42	13,500	1,182	62%	28%
Installed Ecokit	\$102	13,500	132	74%	28%
Toilet Rebate	\$100	10,800	108 (not including install)	82%	39%

**Gallons conserved per dollar spent:** The low cost of the DIY ecokit and the high gallons averted if it were installed made that program component by far the most effective element of the WaterWorks! program. However, we had no robust way of tracking installations, and estimate that only somewhere between 25 and 50% of households actually installed them. Even so, the ecokits are clearly the most cost effective means to conserve residential water.

**Savings to citizens and before/after effects** were difficult to calculate due to billing complexities, seasonal fluctuations, a powerful drought, and other obfuscating factors (see Appendix A). A minority of households actually experienced increases in their water bills after our devices were installed, perhaps due to historic drought in the summer and fall of 2012. Nevertheless, strong majorities of households reviewed enjoyed dramatic billing decreases of more than 30%. We estimate an annual savings of approximately \$150 per household—significant to the low-income households we were serving.

**Gallons averted across all program elements:** The program had the potential (if all DIY ecokits were installed) to save 106 million gallons of water a year, approximately .3% of the city's total volume. If only 25% of DIY kits were installed, the figure drops to roughly 50 million, which we believe is conservative.

**BTUs conserved:** From Niagra, the eco-kit company, we learned that each installed kit would save approximately 2,124 kilowatt hours annually for an electric water heater, or 117 therms if a gas heater is used. We double-checked their figures with EPA experts, who felt some figures were understated and others overstated, so we counted on these

balancing each other out. When translated into BTU/hrs and averaged between gas and electric, each kit represents 8,500,000 BTU (hrs or ths) annually. If 25% of DIY kits were installed, plus those installed by professional plumbers, 1875 kits altogether would save 15,937,500,000 BTUs. To this figure, we should multiply .2% by KCMO Water Services' annual kilowatt hours used to process water (Jerry, can you get at this number?).

**Total economic impact:** If all water ecokits were installed, the collective potential annual savings to citizens of Kansas City, based on the estimated annual savings of \$150 per average 2.7 person household, would reach over \$1 million annually for ecokits alone—truly a remarkable payback on the roughly \$850,000 for the entire WaterWorks! program invested by the City and DOE. Of all the stories to be told about the program, this overall figure is the best story, we think, illustrating the powerful economic impact of energy efficiency. The eco-kits installed by citizens themselves recover their own costs in the first *month* after installation—the best payback period of any energy efficiency measure Bridging The Gap has worked on across many programs and years. We highly recommend that the City and the U.S. Department of Energy make these kits the centerpiece of future water conservation programs, and confirm their installation.

## **Detailed Report**

### **Background**

EnergyWorks KC is a program designed to reduce energy consumption by improving the energy-efficiency of buildings in Kansas City. In applying for this grant, made available from the U.S. Department of Energy pursuant to the American Recovery and Reinvestment Act of 2009, the City of Kansas City, Missouri differentiated its application from those of other cities by acknowledging the role water plays in energy consumption. Because water is energy-intensive and energy is water-intensive, EWKC incorporated a water conservation component in its grant proposal as part of its effort to address the broader objective of energy conservation across the city. This water conservation component of EnergyWorks KC, called WaterWorks!, was launched in February 2012. WaterWorks! is the only program of its kind in the U.S. and is now listed in the U.S. Department of Energy's "Best Practices."

WaterWorks! was created by Bridging The Gap, a subcontractor to the City of Kansas City. The initiative primarily focused on achieving energy efficiencies by retrofitting existing fixtures. Studies suggested that by simply changing to high efficiency fixtures, residents in a four-person household could reduce both their water and energy consumption, lowering their utility bills by an estimated \$200-\$250 annually. Adjusted to reflect a typical Kansas City household of 2.7 persons, the annual savings would be around \$150. Those savings benefit not only the citizens, but also help the City by reducing the amount of water the City has to treat and transport each year by up to a third of one percent of its total volume.

That, in turn, provides associated savings in the electricity required to run the water treatment facilities.

WaterWorks! was developed to provide water conservation education and outreach, as well as simple, cost-effective strategies to encourage Kansas City, Missouri residents to reduce their water usage. The program took a multi-faceted approach, providing in-home solutions for lowering water usage, as well as outdoor strategies for lowering irrigation costs and water consumption through the use of rain barrels and rain gardens. The program was structured to achieve water savings by focusing on the most cost-effective methods; namely, by maximizing the number of gallons conserved per dollar spent.

### **Program Performance versus Contract Goals**

The original WaterWorks! contract was a 14 month contract for \$720K. That initial contract included the following objectives:

- 1600 professionally installed ecokits
- 1600 DIY ecokits
- 1000 \$100 toilet rebates
- 1200 Downspout Disconnects
- 60 rain barrels
- 14 rain gardens

The WaterWorks! program operated with four full-time employees and one part-time employee, plus some support from Bridging The Gap administration. Subcontractors were hired to provide labor in the field.

Once WaterWorks! launched and the program began to evolve, a series of contract amendments and a contract extension resulted in a revised budget of \$847,500 and a 19-month contract with modified goals. The most significant contract modification was in the budgeted number of downspout disconnects, which will be explained in detail later in this report.

Final contract objectives and program accomplishments were as follows:

<b>Program Component</b>	<b>Objective</b>	<b>Actual</b>
Installed Ecokits	1600	1600
DIY Ecokits	5106	5106
Toilet Rebates	1000	1459
Downspout Disconnect	27	27
Rain Barrels	375	375
Rain Gardens	12	12
Native Gardens	0	2

## **Overview of Program Components**

### **Installed EcoKits**

Professionally installed ecokits were a highly successful component of the WaterWorks! program. The contract objective of 1600 installs was completed in May 2013.

Bridging The Gap contracted with America on the Go Plumbing to install the 1600 ecokits. Leonard Washington, CEO of America on the Go, proved to be an excellent ambassador for WaterWorks! Dependable and personable, Mr. Washington engaged residents in WaterWorks! by explaining how the ecokit would save them both water and money. He also took the time to educate residents about other opportunities to save water in their home. One resident commented, "...he let me know that, although the faucets that I have, like in one of the downstairs bathrooms and in the kitchen, are beautiful to look at, they are using too much water. The one in the kitchen is using about 2 1/2 gallons of water each time we turn it on. What a lesson! ...This man was worth his weight in gold!"

As a result of his work with WaterWorks!, Leonard Washington was able to grow his small company into a sustainable entity. WaterWorks! personnel was able to help the company establish more professional operating procedures and management. The company added a full-time office manager and is now poised for continued growth.

Installed ecokits were a very successful component of the WaterWorks! program because they ensured that all distributed ecokits were actually installed. While not all components of each ecokit were installed at each residence, WaterWorks! was able to verify that installation of the appropriate components occurred. The contract requirement of Davis Bacon wage rates reduced the gallons saved per dollar spent figure for this program component. While the ecokit itself was only \$7.00, Davis Bacon wages brought the cost of each professionally installed ecokit to \$102, causing this program component to be the least cost-effective measure of WaterWorks!—though still providing significant water conservation value to the city and its residents.

### **DIY EcoKits**

The Do-It-Yourself water ecokit proved to be the star of the WaterWorks! program. At a per unit cost of \$11.42 and an estimated savings of 13,500 gallons of water per year, DIY ecokits were the most cost-effective component of WaterWorks!, with an impressive 1,182 gallons saved per dollar spent. Free to residents, easy to install and marketed in distinctive house-shaped packaging, demand for the DIY ecokits was high, and inventory was depleted in June 2013, three months before the contract period expired.



WaterWorks! launched with a goal of 1600 DIY ecokits. As management realized both the high demand for -- and cost-effectiveness of -- these DIY kits, WaterWorks! redirected resources from less effective program components to the DIY kits as contract scope changes were approved. The contract extension added 1500 kits to the objective. Ultimately, WaterWorks! distributed 5,106 ecokits.

The key success factors to the DIY ecokits were their unique and attractive house-shaped packaging and their low unit cost of \$11.42. Although WaterWorks! estimates the installation rate of these kits was well below 50%, the low unit cost still made this strategy more effective than the other, higher cost components. The single greatest challenge of the DIY kit pertained to WaterWorks!' inability to track DIY installations. Management had no visibility as to which specific components of the kit were installed or whether the kit was installed at all. We learned that not all kit components were universal, preventing some residents from installing some components on their particular fixtures. This inability to validate installations made it challenging to quantify the impact of WaterWorks! DIY kits, but we attempt to do so in Appendix A.

### **Downspout Disconnects/Rain Barrel Installations**

Bridging The Gap originally proposed that 1,200 downspouts be disconnected or redirected and 60 rain barrels be installed as part of WaterWorks!. A scope change was approved early in the contract period to accommodate Davis Bacon wage requirements, thereby establishing a new target of 391 downspout disconnects. That objective was later reduced further as management learned how few connected downspouts there were in the program's targeted neighborhoods. In addition, the program offered residents free disconnects, but the "no charge" feature proved insufficient incentive to overcome residents' reluctance to disconnect their downspouts. Other municipalities where downspout disconnect programs had been successful (such as Portland, OR) had stronger incentives; namely, residents were required by city ordinances to disconnect their downspouts or face penalties. In addition, the successful municipalities awarded residents a \$50 payment incentive. Backed by neither local ordinances nor financial incentive, WaterWorks! lacked a compelling incentive for residents to voluntarily disconnect their downspouts.

The downspout disconnect program launched in April, 2012 with the distribution of marketing materials to more than 5,000 households in six targeted low-income neighborhoods. In spite of that marketing initiative, only 126 homes requested a downspout assessment. Subsequently, Bridging The Gap modified its marketing strategy and sent a canvassing field supervisor out to identify connected downspouts in the targeted neighborhoods. After canvassing 2500 homes, only 64 buildings were identified as having connected downspouts; 15 were ineligible due to vacancy or posted as No Trespassing. Only two residents contacted WaterWorks! to request a downspout disconnect. In June

2012, Bridging The Gap strengthened the incentive by including a free professional installation of its water ecokit along with the free disconnect. Interest remained very low and, in December 2012, WaterWorks! partnered with Kansas City Water Services Department to offer the installation of a rain barrel as an incentive to disconnect residents' downspouts. Water Services contributed 375 rain barrels to the WaterWorks! program. Ultimately, WaterWorks! assessed 109 connected downspouts and disconnected only 27; however, rain barrels proved very popular with the public and 375 rain barrels were installed, thereby supporting the original intent of redirecting rain water effectively. This component of the WaterWorks! program was concluded in early second quarter 2013, as the modified contract goals of 375 rain barrel installations and 27 downspout disconnects were completed in April 2013.

### **Rebates for High Efficiency Toilets**

WaterWorks! distributed 1,459 toilet rebates over the course of the contract. While the original contract called for the approval of 1,000 rebates, and the contract extension provided funding for an additional 200 rebates, not all rebates were issued at the budgeted \$100 amount. Subsequently, WaterWorks! was able to award 259 rebates above the original 1200 objective.

Over the course of the contract, WaterWorks! learned that the most effective channel of distribution for toilet rebates was multi-unit buildings. Many multi-unit buildings have pre-1980 toilets installed in their units. High water bills provide property managers with significant incentive to replace those old toilets with high-efficiency models. Program operating efficiencies improve when, with one contact, WaterWorks! can ensure large numbers of old toilets are replaced with high-efficiency models.

The Toilet Rebate component of WaterWorks! experienced a high installation rate, as residents had to put forth considerable effort to receive the rebate. Residents had to purchase the new toilet and complete a significant amount of paperwork in order to apply for the rebate. This up-front investment in both time and money assured followed through with these water-savings measures. The relatively high cost of the toilet rebate, \$100, resulted in 108 gallons saved for every dollar spent.

Outside the scope of the WaterWorks! contract, Bridging The Gap pursued an initiative to divert many of the old toilets being replaced through the Toilet Rebate program from the landfill. Although BTG worked for over a year identifying corporate partners to store the old toilets, crush them, incorporate them into concrete aggregate, and then finding an end-project for that recycled concrete, we were unable to bring that initiative to fruition. The concrete aggregate is untested and, therefore, does not meet specifications for any municipality. Furthermore, the recycled concrete would have cost the end-user more than standard concrete, providing no incentive for organizations to use the material on their property. Lastly, the sheer volume of concrete the toilets would have produced was

enormous, significantly more than any company could use for its concrete projects. In the end, Bridging The Gap had to have the toilets transferred for disposal into landfills.

### **Installation of Rain Gardens**

WaterWorks! original contract goal was 14 rain garden installations. Through a scope change to the contract, the targeted number of rain gardens was modified to 12 to accommodate Davis Bacon wage requirements. That goal was reached in first quarter 2013.

### **Installation of Native Gardens**

While outside the scope of the original contract commitment, in September 2013 WaterWorks! initiated the installation of two model native gardens in high-visibility public places (KCMO Water Services and Barry Park). These gardens serve as a means to educate the public about on-going water conservation, beyond the life of the WaterWorks! program, through sustainable landscaping. Signing at each location will explain the role of native plants and trees in conserving water. By educating citizens about native gardens, WaterWorks! intends to empower homeowners to reduce their irrigation water usage, which accounts for nearly 60% of residential water usage.

### **Community Outreach and Education**

WaterWorks! spent a significant amount of time and energy providing outreach and education. The program hosted six Water Fairs, which were designed to engage community residents in water conservation education. The water fairs included six educational stations (including a popular “blinged” toilet), games, and a visual rain garden display to interact with the public. Guests were encouraged to visit each of the educational stations and have their WaterWorks! passport stamped while learning about water and energy conservation. Once passports were completed, the guest could turn it in for a free DIY ecokit. The water fairs enabled the WaterWorks! team to engage with citizens more deeply on water and energy conservation education.

In addition, WaterWorks! conducted several "Lunch and Learns" to educate businesses about water conservation. The staff made numerous presentations to community groups, neighborhood associations and schools, as well as had a presence at events across the city that gave us an opportunity to provide water conservation education. WaterWorks! also hosted a major water conservation event that educated over 300 people about the importance of water, water conservation, and its effects on energy consumption in a unique setting that enabled citizens to learn firsthand about Kansas City's water at its source. Held at the Kansas City, Missouri Water Services Pump House, the setting proved to be a dramatic backdrop for bringing new awareness and understanding to the tremendous importance of water conservation.

Bridging The Gap's executive director prepared a Power Point presentation about global, national and local water issues, and gave it on Earth Day at Kansas City, MO Water Services. The presentation was broadcasts to five other city facilities. In addition, this presentation was given to other audiences such as DeLoitte Corporation and parents of a local private school. The DOE has received a copy of this Power Point. BTG's executive director also traveled to her home town of Cincinnati in October 2012 and presented to the National Water Alliance, showing the eco-kit and WaterWorks successes to a large national audience.

Bridging The Gap subcontracted with local non-profit Green Works, whose mission is to expose at-risk youth to environmental education and prepare them for careers in the "green" sector. Green Works youth developed several interactive games and a presentation written by Bridging The Gap called "Five Blue Things", and gave these at numerous events and in various venues.

In August 2013, Bridging The Gap staff went to Shadowcliff Lodge in Grand Lake, Colorado, and studied water conservation issues with a doctoral candidate from Colorado State University and a local water-education non-profit. We learned about 22 national watersheds, federal and state water policy, and studied the origins of the crucial Colorado river there in Grand County.

Bridging The Gap also tweeted, posted on Facebook, and redesigned our web site for more water information, and assisted the City's Jerry Shechter in writing and performing in two videos on water conservation, as well as radio appearances.

Through its outreach initiatives, program management estimates WaterWorks! was able to touch nearly 10,000 people in its water conservation education efforts.

## **Employment**

Bridging The Gap was able to directly employ 4.1 full-time people throughout the 20 months of the WaterWorks! grant, while subcontracting a plumber full time for 15 months, who in turn hired 1 FTE office administrator and 7 more plumbers for some jobs. In addition, BTG offered casual labor opportunities to crews of 4-6 each installing rain gardens, and two people seasonally employed to deliver and install rain barrels. Bridging The Gap also conducted a financial literacy program for its plumbers. We significantly exceeded the city's required MBE requirements, and met our WBE ones also

Bridging The Gap, as an agency, stretched and expanded its capacity through managing this complex program. With this experience under our belts, we are confident of being able to manage more large, citizen-interface-based projects of this kind, and hiring more people to run them. We have gained credibility as local experts on water, and valuable experience in

hiring and managing relatively unskilled people for shorter-term projects as well as program management. Through the strategic plan developed by our WBE contractor, Vireo, we hope to develop an earned income stream by selling native plants and drip irrigation kits at local home and flower shows, starting modestly in the spring of 2014.

### **Lessons Learned**

- **DIY Eco-Kits offer highest gallons/dollar of any program element:** significant amounts of water can be conserved by showerheads, faucet aerators and toilet “Tank Banks” offered in the Niagra Co. eco-kit. At prices of \$7 (unpackaged) or \$11 (packaged), the typical household recovers the investment in the kit in the first month after installation! We would recommend that every municipality interested in water conservation distribute and install these kits or provide incentives for their citizens to do so. Not paying Davis-Bacon wages could bring down the installed cost of the kit, and this service is welcome to elderly people or those intimidated by installing themselves. We also recommend that confirmation of installation be built into any program.
- **Importance of relationships:** Bridging The Gap's strong background in community-building proved highly beneficial in gaining neighborhood support for the WaterWorks! program. By engaging community leaders and neighborhood stakeholders, we were able to create significant interest in, and demand for, the different components of the program.
- **Excellent customer service, including detailed follow through,** is essential. By assigning a project manager to each targeted neighborhood, Bridging The Gap was able to give residents a “face”, or at least a friendly voice on the phone, for WaterWorks. This personalized approach proved beneficial, particularly when the lag times between the sales cycle and product delivery (for rain barrels) proved significant.
- **Hiring the right people is key,** with strong interpersonal and organizational skills. All subcontractors and employees must be excellent representatives of the program. The program itself is complex. The subcontractors and employees must coordinate effectively, take responsibility to ensure the program's success, and participate in problem-solving as the program evolves over time.
- **Concise messaging is important.** BTG's initial collateral for WaterWorks! was too complex and text-intensive. Subsequent marketing pieces were simpler and more concise -- and noticeably more effective. Throughout WaterWorks!, however, word of mouth proved to be the single most effective marketing approach.
- **Simple and effective inventory and installation tracking systems are critical.** Inventory management must be managed on multiple levels and for different channels of distribution. For example, program analysis would have been more accurate if WaterWorks! had developed a way to track DIY ecokits overall, as well as at the component level. Additionally, we had no means to verify whether the DIY

kits that were distributed were actually installed. Further complicating the tracking system was the failure on the part of third-party partners to follow WaterWorks! tracking guidelines. Collectively, these tracking challenges compromised the quality of our data which, in turn, limited our ability to evaluate the impact of the program.

- **Multi-unit buildings are an excellent target for water conservation initiatives.** Water is not a shared expense; the water bill is typically paid by the landlord. Thus, there is inherent incentive for landlords to participate in water conservation programs. This channel also ensures that the installation rate will be high, since property managers have the building maintenance staff handle the installations. Another lesson is that face-to-face interaction with landlords is important; email and phone calls frequently go unanswered.
- **Participating in larger, city-wide events** provided WaterWorks! with a much larger audience to engage in water conservation, and is more cost-effective than creating new events. While our community outreach and education efforts through WaterWorks! Water Fairs were successful, their reach was constrained by the size of the neighborhoods. On the other hand, the neighborhood water fairs enabled Bridging The Gap to engage more deeply with each guest and, therefore, provide more water education on an individual basis. We believe this deeper level of engagement resulted in a higher rate of follow-through and installation of the WaterWorks! components.

## WaterWorks! Stories

Please see the executive summary for our biggest “story”—the overall economic impact of WaterWorks on Kansas City. In addition:

- **America on the Go Plumbing.** WaterWorks! eokit installation program enabled America on the Go Plumbing to grow into a sustainable business. The sole-proprietor company was able to add one permanent full-time position and provide seven temporary positions to under-employed workers. The work generated by our program stabilized this small company, enabling it to establish a business office and acquire a company truck. Additionally, WaterWorks! gave the owner, Leonard Washington, an opportunity to pay down his personal debt, improve his credit ratings, and position himself to be qualified for a line of credit to further grow his company.
- **Multi-unit properties.** WaterWorks! learned that multi-unit buildings were a highly successful channel of distribution for both DIY eokit and toilet rebates. Because landlords typically pay the water bill, they are very interested in opportunities to lower water usage. One landlord, Karen Arciszewski, installed 150 high-efficiency toilets as part of the Toilet Rebate program. The old toilets, which

were all pre-1980 models, used 7 gallons of water per flush. By replacing those old models with high efficiency toilets with 1.28 gallons per flush, Karen will save roughly 28K gallons of water per toilet, or over 4M gallons of water overall. Karen recommended the toilet rebate program to a property manager colleague in another multi-unit building, who subsequently replaced 79 old toilets in her buildings. Enock Odede, one of our program managers, was very effective in building relationships with landlords and building managers to make all this happen.

- **Westside Housing Organization.** WaterWorks! partnered with the Westside Housing Organization to bring water conservation to its low-income properties by installing water ecokits. Before launching this initiative, WaterWorks! worked with the neighborhood leaders to identify a Spanish-speaking plumber who would work with Bridging The Gap's subcontractor, America on the Go Plumbing, in the Westside neighborhood. This would enable WaterWorks! to reach the many residents of Westside who speak little or no English. Westside native Joe Moreno was excited to be hired to work side-by-side with America on the Go to coordinate installation schedules, provide access to units, and field questions from residents. Not only were 131 installations completed, but Westside Housing Organization worked with Bridging The Gap to provide leave-behind literature in both English and Spanish. Westside Housing Organization was later named one of 16 organizations to receive the NeighborWorks Green Organization designation for a comprehensive commitment to sustainable operations from NeighborWorksAmerica, based on adherence to a set of green business practices across the organization's operations and all of their program areas.
- **Green Works.** Green Works is a non-profit organization that focuses on environmental education and workforce development for urban teens. Over the course of the WaterWorks! program, Green Works students supported our community education objectives by creating a fun water conservation activity which would engage citizens at community events by using two interactive presentations. First, the students designed and created a game show based on the popular television game show *Jeopardy!*. The Green Works game show, *Our Water is in Jeopardy!*, included five water categories; water conservation at home, Kansas City water facts, Brush Creek, native plants and the water cycle. Green Works students used their best game-show-host voices to attract even more attention to the large, colorful game board. Second, the students delivered an educational presentation written by Bridging the Gap, *5 Blue Things*, which explains the effects of Kansas City's water-wasting habits and provides five things everyone can do at home to conserve water and save money. Green Works presented *5 Blue Things* to elementary schools, community meetings, neighborhood associations, and educational community workshops. The involvement of these urban students in the

WaterWorks! program provided them with an excellent opportunity to hone and showcase their knowledge and presentation skills in a public forum.

- **WaterWorks! in Africa:** Enock Odede, hired by BTG as a WaterWorks program manager, is from Nairobi, Kenya and came to Kansas City's Parkville College on a soccer scholarship. His extended family back in Kenya obtains drinking water from rainwater from their roofs, since the formerly abundant local river has been dammed upstream. The roofs of Enock's family members and others in the community were very degraded and the water dripping from them unsafe to drink. Bridging The Gap set up an on-line fundraiser to place a large roof on a local church roof and outfit it with an enormous rain barrel, which now fulfills the needs of safe drinking water for many members of the congregation.
- **Party at the Pumphouse:** Bridging The Gap wanted to celebrate its 20-year anniversary with an evening gala this year. Knowing about our water conservation efforts, a volunteer on the planning committee remembered seeing an interesting place from the highway near the edge of the Missouri River. This proved to be the historic, retired 1925 drinking water pumphouse, right next to the currently operating pumphouse. Kansas City, Missouri Water Services, which had been working with BTG on the rain barrel portion of WaterWorks!, surprised and delighted us by agreeing to host our gala at this sensitive site, which had never before been open to the public. KCMO Water Services re-paved the site for the party, conducted tours of the pumphouses during it, and showed demonstrations of how our drinking water is processed. Over 300 distinguished guests coming on shuttles to the event were treated to a lively quiz about water in Kansas City, and were amazed to see how their drinking water is created at this spot. Guests, including our founder Bob Mann, came from Seattle, Austin, and Ft. Collins; speakers spoke of the power of the mighty Missouri as it flowed by. As one guest said, "I will never think of water the same way again". Another: "The site was genius".
- **Shadowcliff:** through our founder's work, Bridging The Gap is the parent organization for a sustainable mountain lodge in Grand Lake, CO called Shadowcliff. BTG drives its entire staff there every 2-3 summers for a retreat. This year our founder, Bob Mann, arranged a two-day water conservation seminar. We spent a day on Grand Lake learning from a local water educator about water issues in the state, seeing the tunnel that diverts water under the mountains to Denver, and climbing in the hills among the 9 water sources which combine to make the headwaters of the crucially-important and dwindling Colorado river, right there in Grand County. Our second day was spent with a CSU doctoral student in hydrology, who illuminated the national map of 22 water sheds and explained the particular



issues of the Missouri to us. We came back with more materials which will help us educate Kansas Citians further.

- **WaterWorks! effect on Bridging The Gap:** Through this contract, BTG was able to broaden its capabilities and community impact. The insights and experiences the organization gained through WaterWorks! strengthened this non-profit entity's ability to deepen its engagement in, and contribution to, water conservation both locally and nationally, as we continue to share our experiences with other cities like Columbus, Ohio. Because WaterWorks and Housewarmings helped to defray overall administrative costs such as rent, Bridging The Gap's eight other programs (Heartland Tree Alliance, Environmental Excellence Business Network, etc.) enjoyed reduced costs during the 20 months of those programs. As a result, our cash position was restored to pre-recession levels. We are living testimony to the effectiveness of the Obama administration's stimulus program.

### **Conclusion**

WaterWorks! proved to be a highly successful initiative on all fronts. It provided important educational outreach and a significant number of water-saving devices to the residents of Kansas City. The program was so well-received that water-conservation inventory was depleted well before the grant period expired. An analysis of program outcomes suggested that each of the components of the WaterWorks! program was successful in achieving a significant reduction in water usage. The most impactful component was, by far, the DIY ecokit.

With an eye towards maximizing gallons saved per dollar spent, the low unit cost of the DIY ecokit put it at an advantage that the other components, even with their higher installation rates, could not surpass. The DIY ecokits, with 1182 gallons saved per dollar spent, far outpaced the professionally installed ecokits (132) and the toilet rebates (108).

WaterWorks! had a tremendous impact beyond these numbers. It achieved its vision of providing employment, job training, and business development, both internally and externally. Many of the individuals who found work through BTG were able to move on to other employment opportunities. Several small companies were able to grow their businesses through this contract. WaterWorks! exceeded its MBE funding commitment of around 13%, coming in closer to 20%. It also met its WBE objective, providing needed employment to those vendors.

We thoroughly enjoyed our collaboration with the KCMO Department of Environmental Quality, Kansas City Missouri Water Services, the U.S. Department of Energy, Green Works of Kansas City, and America On The Go Plumbing. Thank you for this fantastic opportunity!

## Appendix A

### WaterWorks! Program Data Analysis

As promised in our grant application, WaterWorks! attempted to analyze and quantify the actual before-and-after gallons of water conserved for three elements of our program: DIY ecokits, Installed ecokits, and toilet rebates. We did not request funding for an independent market research firm to do this work; rather, it was conducted by our WaterWorks! staff. For that and other reasons described below, this analysis is not statistically valid, but we believe it provides useful insights into the effectiveness of the WaterWorks! program and can be used to inform the thinking of any entities interested in replicating this highly successful program.

#### ***1. Data Collection***

WaterWorks! tracked the distribution of several WaterWorks! components: DIY ecokits, Installed ecokits, and toilet rebates, as well as the address of the resident receiving the ecokit and/or toilet rebate, and the date of installation, where it was known, attempting to analyze before/after effects from that date. Water use data from Kansas City, Missouri Water Services Department was then requested for a 12 month period (May 2012 through May 2013) for each household by category:

1. Households that received a Do-It-Yourself ecokit
2. Households that received an ecokit installation
3. Households that installed a high-efficiency toilet through the rebate program
4. Households that received either type of ecokit **and** installed a high-efficiency toilet through the rebate program

WaterWorks! merged the Water Services Department data with internal data indicating the date of installation/receipt for each component in order to categorize the data as either pre-WaterWorks! water usage or post-WaterWorks! water usage data.

#### ***2. Data Constraints***

In requesting data from the Kansas City, Missouri Water Services Department tied directly to specific residences, WaterWorks! expected to receive data on actual water usage data over a 12-month period that would enable us to accurately quantify the impact of our water-savings programs. However, the data that Water Services was able to provide included not actual water usage but, rather, billed units. This compromised the quality of our analysis, as billed units may not reflect actual usage, as in the case of those customers on a level-pay plan, or who are delinquent on their previous month's bill.

Additionally, WaterWorks! had hoped that, by gathering 12 months of data, we would have visibility into water usage “before and after” installation of the program elements (ecokits and high-efficiency toilets). That, in turn, would provide baseline “control” data on water usage prior to WaterWorks! However, three other issues precluded us from truly being able to establish a baseline:

- **Focusing on a small segment of use:** the combined elements of the WaterWorks! offering targeted, according to data from the American Water Works Association Research Foundation (see pie chart below), roughly 24% of total household water usage (although EPA data would suggest a higher figure). Nevertheless, since WaterWorks! devices addressed a minority of overall household water use, remaining household water usage could change overall billings, and we were unable to attribute changes in water usage directly to any specific elements of WaterWorks!
- **Seasonality:** Residential water usage fluctuates significantly over the course of the year, as irrigation drives usage up considerably during summer months. An unseasonably warm winter can also increase water usage in the winter months.
- **Drought:** the summer of 2012, the peak of our eco-kit distribution, was the hottest on record in the state of Missouri, and the 7<sup>th</sup> driest in recorded state history. The city lost twice its normal level of trees, to illustrate the point. With these two factors combined, outdoor irrigation was undoubtedly at record levels even through the fall.

Baselines, with all of these variables, were difficult to establish. In fact, the data we obtained sometimes indicated an *increase* in water usage when comparing the pre- and post-WaterWorks! data, perhaps explained by these factors.

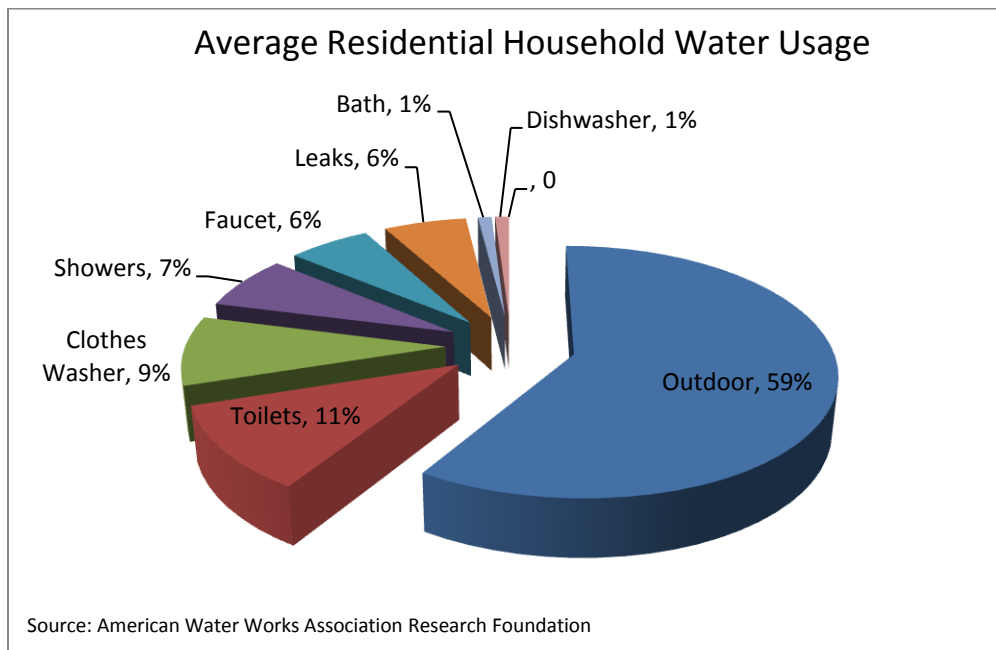
Unable to rely on Water Services Department's billed usage data to provide a definitive measurement of the impact of the WaterWorks! program!, the WaterWorks! team supplemented its benchmarking effort with secondary data. Using secondary data on national averages, local water use, and the savings estimated by the manufacturer of the program's core component, the water ecokit, WaterWorks! developed an estimate of the anticipated savings each program component was expected to provide. WaterWorks! then compared the Water Services actual data with the anticipated savings to assess whether WaterWorks! achieved its expected savings. However, it is important to note that the quality of the national and local average data, as well as the overall savings estimated by the water ecokit manufacturer, have not been independently confirmed.

Lastly, WaterWorks! did not have visibility to the number of ecokits that were only partially installed (i.e., the aerators and toilet bank might have been installed but not the

showerhead). Additionally, there was no tracking mechanism that provided data on whether the DIY kits distributed to residents were actually installed at all—something we would strongly recommend to other municipalities designing subsequent programs.

## 5. Anticipated Savings

The potential impact of WaterWorks! program components on total household water usage can be put into perspective by understanding the breakdown of overall water usage in American households. The American Water Works Association Research Foundation determined that actual water usage breaks down into eight primary categories, as illustrated below. Please note that their figures differ substantially from the EPA's, which states, for example, on its Water Sense website that 70% of household water is used indoors.



The components of the water ekokits are considered retrofits or replacements for less efficient fixtures and only affect toilets, showers, and faucets. Based on this information, the WaterWorks! eokit component targets 24% of overall household water usage (faucet: 6%; shower: 7%; toilets: 11%). According to these figures, the vast majority of sources of household water usage (76%) is unaffected by the components of the WaterWorks! program.

However, it should be noted that Kansas City's average water usage is 20% below the national average (which is boosted, we hypothesize, by higher levels of irrigation in western and southern states). Johnson County, KS data (the closest we could get to Kansas

City) shows an average household use of 85,410 gallons annually for a 2.7 person household. According to EPA figures, a national average for 2.7 people is 98,550.

The EPA also claims that water use inside the home is 70% of the total, not 41% as the pie chart above shows. Both Kansas City's lower water use overall, and its hypothesized higher use of water indoors vs. national averages, would cause WaterWorks!' ecokits and toilets to produce larger percentages of water saved than this pie chart would suggest.

Anticipated savings of the WaterWorks! components are as follows.

#### **A. EcoKits: DIY and Installations**

The water-saving ecokit distributed and installed throughout the Kansas City area during this 20 month grant is estimated to generate a potential household savings of 13,500 gallons a year for local residents. This number was calculated by adjusting the 20,000 gallons/year savings claimed by the ecokit manufacturer, Niagara, which was based on a 4 person household, to reflect the average Kansas City household of 2.7 persons.

Based on estimates from the 5<sup>th</sup> Water District of Johnson County, KS, the average household consumption of water in this area is 234 gallons per day, or 85,410 gallons per year. Given the potential ecokit savings of 13,500 gallons/year, a household that installed a water-saving kit could reduce its water consumption to 71,810 gallons per year. This translates to an anticipated average household water savings of 15.8%, using local figures.

#### **B. High Efficiency Toilet Rebates**

Toilets are flushed, on average, 5.2 times a day by each person in the household (<http://www.home-water-works.org/indoor-use/toilets>). An average household size in Kansas City of 2.7 persons would then flush 14.04 times per day. With an older, 3.5 gallon/flush toilet, typical household daily water use is 49.14 gallons per day. If the old toilet is replaced with a high-efficiency model (1.28 gallons per flush), water use will decrease to 17.97 gallons, representing an anticipated annual savings of 11,377 gallons in toilet water usage. That savings is, we believe, conservative, as many program participants indicated they were replacing pre-1980 toilet models with 7 gallons per flush.

The U.S. Environmental Protection Agency (EPA) claims that, on average, residents can save 4,000 gallons of water each year by replacing older toilets with high-efficiency models. Specifically, the EPA suggests that a typical family of four can realize the following savings, based on the type of toilet in the household, by replacing it with a high-efficiency model:

- A pre-1980 model using 7 gallons per flush saves almost 42,000 gallons/year
- A pre-1980 model using 5 gallons per flush saves almost 30,000 gallons/year
- A post-1980 model using 3.5 gallons per flush saves almost 16,000 gallons/year
- A post-1990 model using 1.6 gallons per flush saves almost 2,000 gallons/year

Because of the age of housing stock in lower-income neighborhoods of Kansas City addressed by this grant, we conservatively estimate a savings of 10,800 gallons per toilet rebated. This estimate was derived by adjusting the EPA's estimate of 16,000 gallons for a household of 4 (with models produced between 1980 and 1990) to reflect a household estimate of 2.7 in Kansas City. This represents an average household annual savings of 12.6% conserved--higher even than the *total* of 11% total for toilets suggested by the national pie chart, but based on local figures and older housing.

The table below summarizes the impact the water ecokit (whether DIY or Installed) and toilet rebates are projected to have on total residential water usage, assuming a 2.7 person household:

WaterWorks! Component	Average Total Household Water Usage	Potential Savings through WaterWorks!	Projected % Household Savings with WaterWorks!
Water Kit	85,410 gals/yr	13,500 gals/yr	15.8%
High Efficiency Toilet	85,410 gals/yr	10,800 gals/yr	12.6%

### C. Total POTENTIAL Program Impact (if all elements were completely installed)

If the potential savings by program component are multiplied by the number of units achieved by the WaterWorks! program, then the potential collective impact of this initiative is a savings of over 100 million gallons of water a year:

Program Component	Potential Savings (gal/yr)	WaterWorks! Units	Potential Program Savings (gallons/year)
-------------------	-------------------------------	----------------------	--

Installed EcoKits	13,500 / kit	1600	21,600,000
Do-It-Yourself EcoKits	13,500 / kit	5106	68,931,000
Rain Barrels/ Downspout Disconnections	220 / barrel	405	89,100
Toilet Rebates	10,800 / toilet	1459	15,757,209
Rain Gardens	1600 / garden	12	19,200
<b>Gallons Saved/ Year</b>			<b>106,396,509</b>

\*Savings based on a household of 2.7 persons.

This figure translates into roughly .3% of the city's total annual water volume, which is 36 billion gallons. If we assume  $\frac{3}{4}$  of the eco-kits did not get installed, which is conservative, the total figure drops to approximately 50 million gallons annually, or .15%

More than 6800 residents of Kansas City, Missouri have benefitted from water conservation retrofits and education offered through the WaterWorks! program. If all water ecokits were installed, the collective potential annual savings to citizens, based on the estimated annual savings of \$100 per average 2.7 person household, would reach over \$680,000 annually for ecokits alone. The eco-kits in particular recover their own costs in the first *month* after installation—the best payback period of any energy efficiency measure Bridging The Gap has worked on.

## 5. Data Analysis Findings

### A. Do-It-Yourself EcoKits

Data was analyzed for 1120 households that received DIY ecokits, representing roughly one third of the households that received kits over the course of the program. The total average household change was a savings of 3.96%. This is considerably below the anticipated savings of 15.8%.

However, of the 1120 households analyzed, 62% experienced a decrease in billing after receiving the kit. On average, these households showed a 27.96% savings, well-above the anticipated savings of 15.8%. This figure also compares favorably to the control numbers generated by Johnson County's District 5, where an average savings of 23.5% was projected after ecokit installation. However, WaterWorks! believes its findings of a 27.96% savings could be skewed by its reporting period.

The 13 month period that was analyzed did not necessarily capture the peak water use months (June/July/August) before and after ecokit installation.

Of the 1120 households, 36% of households, experienced an *increase* in their water bill that averaged 40%. Because the water ecokit did not address the use of water by large appliances or outside the home, WaterWorks! believes that 40% may be the result of water usage outside the scope of the WaterWorks! program components. Again, WaterWorks! is unable to confirm whether the residents receiving the DIY ecokit actually installed the kit.

Twenty households (2% of the total) experienced no change in their billing after receiving a kit. Again, WaterWorks! is unable to confirm whether these residents installed their ecokits. During a follow-up phone survey, WaterWorks! called 173 residents. Of these calls, only 44 residents (25%) were reached for a survey; of those, only 50% had installed part of all of the kit. However, in light of the majority of people who would not respond to the survey, we hypothesize that a 50% installation rate may be significantly higher than the actual installation rate. Based on feedback from conversations with residents and the varying levels of ecokit education involved in at the different distribution events, WaterWorks! assumes conservatively, for purposes of this analysis, a DIY installation rate of 25%.

In summary, the results of the DIY ecokit analysis are as follows:

	Total	Billed Usage Increased	Billed Usage Decreased	No Change in Billed Usage
Units	1120	404	696	20
% of Total	100%	36%	62%	2%
Avg. Change in Billed Usage	-3.96%	40%	-27%	0%

## **B. Installed EcoKits**

Here, WaterWorks! can confirm that the 100% of the distributed kits were installed by our sub-contracted plumber, America On The Go. Subsequently, WaterWorks! believes this subset of data provides the most accurate estimate of savings for the ecokit category.



Of the 1600 household that received an installed ecokit from America On the Go Plumbing, roughly one third (545) was analyzed. The overall change for residents was a savings of 7.77%, still below the anticipated savings of 15.8%.

A strong majority, 73.58%, of households receiving ecokit installations experienced a *decrease* in billing, which averaged 27.96%. However, 25.14% of households experienced an *increase* in billing that averaged 50.95%. The cause of this increase is uncertain. One explanation could be that the date of installation was early in the reviewed billing cycle, causing the "before installation" average to be limited relative to the "post-installation" average in terms of number of months included in the calculation. Additionally, it is possible for a household to be billed for several months during one billing period, which could significantly skew the average.

The results of the Installed EcoKit analysis are summarized as follows:

	Total	Billed Usage Increased	Billed Usage Decreased	No Change in Billed Usage
Units	545	137	401	7
% of Total	100%	25.14%	73.58%	1.28%
Avg. Change in Billed Usage	-7.77%	50.95%	-27.96%	0.00%

### **C. Toilet Rebate**

The High Efficiency Toilet Rebates offered through WaterWorks! were available to over 1000 residents. Each household was allowed up to three toilet rebates. For each application, WaterWorks! recorded the number of rebates requested and the date of application approval. For purposes of this analysis, WaterWorks! used the most recent approval date to determine the pre- and post-installation averages; the program design precluded capture of the actual date of toilet installation data. Additionally, Water Services Department data could not be merged with the number of high-efficiency toilets installed in each residence. Subsequently, the results may be skewed for this program component.

Still, the toilet rebate analysis may be considered more reliable than the ecokit analysis, because residents had to prove their toilet was installed before they could receive the rebate.

Of the 1,459 rebates awarded, 143 households (12%) were evaluated. These households experienced an overall average decrease in billing of 21.75%. In that

sample, 82% experienced a savings in their water bill, averaging an impressive 39.16%, well above the anticipated savings of 12.6%.

In this analysis, 18.8% of households experienced an *increase* in billing, averaging 56.61%. There are many factors that might contribute to such an increase. Because toilets account for only 11% of household use, there may have been increases in water use throughout other parts of the home, including both indoors and outdoors. Once again, seasonality or the 2012 drought could have also played a significant role in the outcomes of this analysis.

In summary, the results of the Toilet Rebate analysis indicate the following:

	Total	Billed Usage Increased	Billed Usage Decreased	No Change in Billed Usage
Units	143	26	117	0
% of Total	100%	18.18%	81.82%	0.00%
Avg. Change in Billed Usage	-21.75%	56.61%	-39.16%	0.00%

#### D. Water EcoKit and Toilet Rebate Combined

Water Services Department data for residents who received ecokits (DIY or Installed) and Toilet Rebates was analyzed using the latter of the date of rebate approval or ecokit installation.

WaterWorks! reviewed data for 48 households that received both a water ecokit and a toilet rebate, revealing an overall average decrease in billing of 18.1%. While this percentage is lower than expected, that outcome could be the result of a significantly smaller sample size relative to the number of ecokit and toilet rebate households analyzed. Of the households reviewed, 75% experienced a decrease, averaging a 31% savings. By contrast, 22.92% of households experienced an increase in billing, which averaged 22%. One household had no change.

The table below summarizes the results for those households receiving both a water ecokit and a toilet rebate:

	Total	Billed Usage Increased	Billed Usage Decreased	No Change in Billed Usage
Units	48	11	36	1

% of Total	100%	22.92%	75.00%	2.08%
Avg. Change in Billed Usage	-18.10%	22.01%	-30.85%	0.00%

## 6. Conclusions

Each of the components of the WaterWorks! program proved successful in achieving an actual reduction in water usage. The relative rankings of the effectiveness of the different components depends on the measurement of success.

From the standpoint of a metric based on gallons saved per dollar spent, the Do-It-Yourself ecokit was the most effective component, with an anticipated savings of 1182 gallons per dollar spent. The Installed ecokits ranked second, with 132 gallons saved per dollar spent. The high-efficiency toilets ranked third in this measurement, with 108 gallons saved per dollar spent (not including the cost of installation, which was borne by citizens). The table below summarizes the rankings based on gallons saved per dollar spent.

Component	Unit Cost	Gallons of Water Saved per Unit	Gallons Saved per Dollar Spent
DIY Ecokit	\$11.42	13,500	1,182
Installed Ecokit	\$102	13,500	132
Toilet Rebate	\$100	10,800	108

Savings realized by those residents who experienced a *decrease* in their water usage mirrored that order, with toilet rebates resulting in a 39% savings; Installed ecokits, a 28% savings; and DIY kits, a 27% savings. *Overall* savings (from households with both higher and lower bills after WaterWorks! intervention) show an exactly opposite ranking in savings: toilet rebate customers' was 21.75%, 7.77% for Installed ecokits, and 3.96% for DIY ecokits.

Although this analysis cannot be considered statistically valid due to constraints in the quality of the data, we believe the savings realized by the majority of residents who experienced a decrease in their usage is a more accurate reflection -- and still a conservative estimate-- of the impact of the WaterWorks! components.

WaterWorks! believes the most accurate measurement of effectiveness considers both cost and actual savings *for households that experienced a decrease* in their bill. When those two variables are both factored into the equation, a third ranking emerges. For every dollar spent, residents realized an average savings on their bills of 2.4% with the DIY ecokits. Residents who took advantage of the toilet rebate program experienced a savings of 0.4%

in their water usage for every dollar invested. Those who had a professional plumber install their ecokits averaged a savings of 0.3% for every dollar invested by WaterWorks! This figure would be even lower, considering that the cost of toilet installation, borne by citizens, is not accounted for. These results suggest that the DIY ecokits were five times more effective than the toilet rebates, and that the toilet rebates, after the citizens' cost of installation is factored in, would be actually less effective than the installed ecokits in achieving cost-effective savings. The ecokit, therefore, was hands-down the winner.

Component	Savings Realized By HH whose bills decreased	Cost per Unit	Savings per Dollar Spent
DIY EcoKit	27%	\$11.42	2.4%
Toilet Rebate	39%	\$100+ installation	<0.4%
Installed EcoKit	28%	\$102	0.3%

The challenge in maximizing the impact of a water conservation program focused on cost-effective savings is in optimizing the variables at play. Certainly, cost per unit plays a significant role. At a cost of \$11.42 (excluding shipping), the DIY ecokits started with a considerable advantage over the other components. Due to the imposition of Davis Bacon wages on the installed ecokit costs, each installation had a unit cost \$102. Although this cost was not borne by the resident, who received the installation and kit free of charge, it compromised the cost-effectiveness of this strategic component. Similarly, the cost of the toilet rebate was \$100/toilet. As the toilet rebate program was designed, residents were required to first purchase a high-efficiency toilet before the toilet rebate application could be submitted.

Another important consideration in evaluating the effectiveness of a water conservation program is the installation rate of each component. Clearly, the DIY ecokits had the lowest installation rate. While the program was not designed in a manner that supported tracking of installation, we believe that the DIY ecokits experienced somewhere between a 25% and 50% installation rate. The other WaterWorks! components, Installed ecokits and toilet rebates, by the nature of the program design, experienced close to 100% installation. However, even these significantly higher installation rates could not offset the significantly higher cost per unit. The low cost of the DIY ecokit made that program component the single-most effective element of the WaterWorks! program.

## 7. Recommendations

One of the key lessons learned during the course of the WaterWorks! program was the importance of providing low cost water-savings measures free of charge to residents while still ensuring the measures were executed. DIY ecokits were low cost, but their installation rate was low. Installed ecokits achieved a maximum installation rate but, given Davis

Bacon wage requirements, the strategy was costly to execute. Toilet rebates achieved maximum installation rates but again, was a costly strategy.

Over the course of the program, WaterWorks! discovered the power of multi-unit buildings in minimizing costs while maximizing installation. Multi-unit buildings receiving DIY kits ensured optimal results were achieved by having their building maintenance crew install the kits. Motivated by the potential savings on their water bill, the landlords had significant incentive to install the ecokits in a timely manner. With an ecokit cost of \$7.00 (significantly lower than the \$11.42 cost of individual ecokits due to the elimination of retail packaging) and an installation rate of 100%, we believe multi-unit buildings were the most efficient channel of distribution for the water ecokits and the most effective component of the WaterWorks! program. Applying a \$7.00 per unit cost to the 7.7% overall savings achieved by Installed ecokits, the savings per dollar spent would have jumped to 1.1%, over double the savings per dollar spent realized by the DIY ecokits.

Based on the insights gained through our experience with WaterWorks!, we offer the following recommendations to any entity considering launching a similar residential water conservation project.

1. Offer free kit installation
  - a. Remove the cost constraints created by Davis Bacon regulations
  - b. Provide some training to skilled workers in order to bridge the gap between the effectiveness for the DIY kit and the kit installation. Kits are relatively easy to install and do not require certified plumbers and/or advanced plumbing knowledge.
  - c. Design the DIY ecokit offering with controls intended to ensure installation.
2. Provide DIY ecokits to multi-unit buildings over single households
  - a. Maximizes unit distribution while improving operating efficiencies by involving only one point of contact for multiple ecokits
  - b. Keeps program costs to \$7.00 per ecokit, since property managers employ in-house maintenance workers to install the kits as part of regular pay
  - c. Supports simple confirmation procedures for multiple kits
  - d. Provides easy measurement of program impact, as property managers can provide data on a regular basis

In an effort to improve data quality for purposes of program evaluation, WaterWorks! recommends that any replication design a data collection plan that provides controls for each component. For DIY ecokits, Installed ecokits and Toilet Rebates, the program team should engage with several (10-20) early and reliable participants in order to obtain 12

months of water usage data prior to any participation in the program. Once installations are completed and confirmed, maintain contact with these residents and monitor changes in both water use and billing, incorporating both qualitative feedback from residents and quantitative data from the water department.

## Appendix 1

### Detail of Program Activity

CONTRACT AGENCY	CONTRACT AMOUNT	REASON FOR CONTRACT	PROGRAM ACTIVITY
Metropolitan Energy Center (MEC)  Regional Non-profit	\$2,684,506	Implementation of EWKC Core Activities	Created & implemented a customer friendly process making it simpler and easier for customers to access a certified energy analyst for their building, an improvements contractor, and various financing incentives and options. Provided training and employment for residents of the core city. Facilitated 4,326 energy efficiency analyses of homes, non-profits, churches, and small businesses resulting in improvements to the energy efficiency of 2,819 buildings. Addressed the policy direction of City Council in the adopted Climate Protection Plan to provide energy efficiency assistance to those who do not qualify for the Low Income Weatherization Assistance Program (LIWAP).
Mid-America Regional Council (MARC)  Regional Planning Agency	\$3,000,000	Implementation of EWKC Core Activities	Building on and expanding the REECS project implemented pursuant to the EECBG Formula Grant, resources were focused on addressing policy barriers to energy efficiency, education and outreach in the region, workforce development and identifying and making available lessons learned from the Green Impact Zone. Addressed the policy direction of City Council in the Climate Protection Plan to regionalize the move toward sustainability.
Blue Hills Community Services	\$2,200,000	Renovate vacant warehouse; Create small business incubator	Non-profit Community Development Corporation (CDC). Successfully renovated a vacant warehouse at 5008 Prospect into a multipurpose facility creating (1) a business incubator with office space for small businesses, with shared back office assistance and storage, (2) office space for Blue Hills Community Services, and (3) meeting space for surrounding neighborhoods. Leveraged \$1,320,841 from other sources.
Bridging The Gap (BTG)  Regional Non-profit	\$847,500	WaterWorks KC	WaterWorks KC was a program implemented recognizing the connection between energy efficiency and water conservation. Reduction in water use and water waste in buildings reduced the amount of water that must be treated and pumped thereby saving energy at the municipal level as well as reducing water related costs borne by home owners. Provided rebates to 1,200 home owners and owners of multifamily developments to reduce the cost of purchase of high efficiency toilets.
Neighborhood Housing Services (NHS)	\$3,246,417	Establish Revolving Loan Fund	Non-profit lender; Member NeighborWorks America. Based on a 35 year history of rehab and mortgage lending in low to moderate income areas, NHS established a loan fund dedicated to energy efficiency improvements. Provided loans in excess of \$2 million to home and business owners in less than 2 years.
Neighborhood	\$1,030,500	Establish	Based on a 35 year history of rehab and mortgage lending in

Housing Services		Interest Rate Buy-down Fund	low to moderate income areas, NHS established an interest rate buy down fund dedicated as an incentive to encourage energy efficiency improvement loans. Provided loans in excess of \$2 million to home and business owners in less than 2 years.
Bridging The Gap (BTG)	\$100,612	House Warming	Regional Non-profit. Established a do-it-yourself/neighbor-helping-neighbor process to achieve residential energy efficiency improvements at less than market costs. Completed 38 homes each achieving at least 15% energy use reduction.
Westside Housing Organization	\$50,000	Multifamily Energy Efficiency	Non-profit owner identified two low- to moderate income multifamily properties in their portfolio in need of energy efficiency improvements. Achieved estimated annual energy use reductions of at least 25% for 25 low to moderate income renter families.
Northland Neighborhoods	\$50,000	Single Family Energy Efficiency	Non-profit Community Development Corporation (CDC). Identified two targeted blocks on which to concentrate both energy efficiency and home improvement resources. Provided energy efficiency improvements to 15 single family homes. Leveraged \$167,990
Guadalupe Centers, Inc	\$50,000	Office Building Retrofits	Non-profit social service agency; Social service agency in the Hispanic community identified two of their administrative and project facilities experiencing excessive energy costs. Achieved improvements of at least 35% projected annual energy use reduction.
Ivanhoe Neighborhood Council	\$28,240	Office Building Retrofit	Neighborhood-based non-profit, owner of a small office building, insulated the uninsulated attic and replaced poor windows resulting in projected annual energy savings of 40%
GEM Cultural & Arts Center	\$40,730	Art Center Retrofit	Non-profit owner; Replaced windows and lighting in this 100+ year old building
ReStart	\$100,000	Homeless Shelter	Non-profit owner; Upgrades to a 4-story temporary residence facility; HVAC Replacement; Upgraded lighting; Full air sealing package; Related duct and electrical repairs to support the upgrades
NHS	\$100,000	Office Building Retrofit	Non-profit owner; Provided half the cost for a new, insulated, reflective white roof
Covenant Memorial	\$50,000	Church Retrofit	Replacement of old HVAC system with two, smaller energy efficient HVAC systems; Related electrical upgrades to support the new systems
Troost Early Learning Center	\$67,805	Education Center Retrofit	Non-profit owner; Complex of four buildings; Completed a full air infiltration package on each building; Replaced inefficient HVAC systems with related electrical and plumbing upgrades needed to accomplish energy efficiency upgrades; upgraded lighting; Energy efficient appliances supporting day care facilities;
BTG	\$19,736	Housewarmings	Utilized home owner and neighborhood donated labor in making energy efficiency improvements to xx moderate income households.
NHS Heal	\$239,000	HEAL RLF	Established a revolving loan fund, in the amount of \$231,500,



			to support employers participating in program concept to establish payroll deductions to repay loans for energy efficiency. Enrolled three local employers in pilot program that provided for improvements to 47 households.
Kansas City, MO (KCMO)	\$3,274,116	Rebates/Grants	Expanding and enhancing rebates offered by KCP&L and MGE, local electrical and natural gas utilities, the City provided funds for energy analysis and improvements with a threshold of achieving 15% reduction in energy use. Rebate amounts were added for Energy Star® rated appliances. Outright grants for energy analyses were made available for limited income households and non-profits.
KCMO	\$640,000	Deconstruction Project	Reverse construction of a building provides a mechanism to (1) save the embodied energy in the already used materials that can be reused, (2) reduce the amounts of construction materials going to landfills, (3) provide workforce (green job) opportunities for unemployed neighborhood residents, and (4) address the Kansas City, MO Climate Protection Plan policy to reduce waste to landfills by 80% by 2020 as compared to 2000. Operated three projects: (1) Ivanhoe Neighborhood Council with leveraged funds, in the form of donated houses and cash for administration, from Wells Fargo; (2) Green Impact Zone, and (3) major redevelopment project to develop combined new KC Police Department East Patrol Division and new regional crime laboratory. Over 60 properties were taken down. Materials from the demolished properties will be used, to the extent feasible, in the redevelopment.
Metropolitan Energy Center	\$15,000	Home Energy Makeover	In partnership with KMBC-TV9, local ABC Network affiliate, implemented a texting campaign providing prizes, up to a whole-house energy makeover, as part of community-wide energy conservation education program.
Heartland Renewable Energy Society	\$10,000	Concert for the Climate	Hosted by socially conscious environmental and conservation groups, and facilitated by the HRES, the Concert for the Climate event educated and informed attendees about the impact of global climate change offering alternative ideas and practical solutions. The event was a musically informative, interactive event with featured speakers. Bill McKibben, founder of 350.org. and Robert Kennedy, Jr.
KCMO	\$10,000	Contractor Training	City of KCMO provided 2-day training on energy efficiency contractors in the metropolitan region. The City facilitated training by the Building Science Academy from Michigan which focused on improving contractor business models for sustainability. Over 50 contractors attended the 2-day training session.
KCMO	\$56,000	Carbon Monoxide Detectors	City purchased Carbon Monoxide (CO) Detectors for use by contractors as (1) educational tool about the energy efficiency – healthy homes nexus, and (2) a give-away marketing tool

			with potential EnergyWorks KC customers. The CO detectors were plug-in with battery backup for easy installation and maintenance
KCMO	\$40,000	Asbestos Assessment & Abatement	The City provided for appropriate assessment and removal of asbestos which inhibited deconstruction or energy efficiency upgrade of a building. Tremendous cost savings was realized by using qualified city staff to gather the material and city pre-bid contracts with fixed prices for assessments.
KC, KS Board of Public Utilities	\$275,000	Revolving Loan Fund	Municipally-owned utility. Established a revolving loan fund in the amount of \$275,000 which enabled energy efficiency improvements to 39 homes in Kansas City, Kansas.
Westside Housing Organization	\$100,000	Nonprofit Office	Non-profit owner; Replacement of HVAC system for two offices and replacement of 120 year old windows of an old fire station, which serves as offices for Westside Housing and Legal Aid of Western Missouri, with ENERGY STAR® certified windows. Windows each 7 ft x 3 ft with arched top.
KC, MO Parks & Recreation Dept	\$100,000	Community Center	Replacement of HVAC system, timers, and lighting in a heavily used community center in the urban core.
Roeland Park, KS	\$75,000	Historic Homes	Energy efficiency improvements to 8 historic homes in partnership with Historic Green. All labor and much of the materials was donated for an estimated leveraged amount of \$38,000.
Truman Habitat for Humanity – ReStore  City of Independence, Missouri	\$85,000	Renovation of Vacant Warehouse Facility	<p>Non-profit owner; The Truman Heritage Habitat for Humanity purchased a vacant warehouse building and renovated it to house the Habitat ReStore facility. Renovation included three functional areas: (1) The sales floor which constitute approximately 50% of the total 12,000 square feet, (2) the receiving area, used to receive donated merchandise and prepare it for sale, which constitutes approximately 30% of the area, and (3) the remaining approximately 20% of the area which is occupied by offices, restrooms, and a break room.</p> <p>The scope of renovation work included several elements that support the goal of reducing loss of energy and increasing efficiency of those systems in the building that are the greatest users of energy – namely, lighting, HVAC, and loss of heat energy due to poor insulation and air infiltration. The existing systems in the building were quite inadequate for the new use of the building, and were inefficient, as indicated in an independent audit report.</p> <p><i>A pre-improvements analysis modeling was conducted prior to getting work done to estimate existing efficiency and then a post analysis was done, after the work was completed, to measure projected annual energy efficiency savings. Estimated annual energy savings is 45%. Work scope included: (a) air sealing, (2) lighting upgrades and additions, (3) HVAC</i></p>

			installation to address no existing central system, (4) Roof insulation, and (5) replacement doors and windows.
Kansas Interfaith Power & Light	\$65,000	Churches	Sub-grant from MARC approached churches in multiple counties to share in the expense of energy efficiency improvements. Contract targeted 15 churches; completed 9 churches. Average estimated annual energy savings per church is 19%.
Full Employment Council	\$200,000	Workforce Development	Identify companies that want to hire people into energy related jobs and then train people for those jobs. Developed and implemented the "Green Careers Training Initiative" to address employment needs from both the employee and employer perspectives.
Kansas City, Kansas Community College	\$158,660	Workforce Development	<p>KCKCC provided a Construction Green-Up training program preparing unskilled and low-income individuals for employment in a construction "green job." Construction Green-Up equipped individuals with the knowledge and skills necessary to achieve a career in a variety of construction jobs. The project's focus was on deconstruction training which is defined as the selective dismantlement or removal of materials from buildings before, or instead of demolition.</p> <p>The Construction Green-Up curriculum has been designed around six modules or skill areas: Occupational Safety and Health certification; Lead Renovator, Repair and Painting certification; Forklift Operation certification; Deconstruction and Salvageable Material Training; Business and Entrepreneurship Workshop; and Essential Employability Skills and Career Placement.</p> <p>A spin-off partnership was formed with Metropolitan Energy Center culminating in formation of a new business in the market called "ReClaim KC". ReClaim KC was formed to address storm damaged trees by collecting them and milling them into usable wood for wood workers.</p>
Metropolitan Energy Center	\$163,740	Workforce Development	<p>Metropolitan Energy Center directly trained or augmented training for workers in:</p> <ul style="list-style-type: none"> <li>• Energy Conservation: Commercial Energy Auditors, Weatherization Installation Contractors and Weatherization Installation Workers</li> <li>• Deconstruction and Environmental Remediation: Deconstruction Workers, Recycling and Reclamation Workers, Hazardous Materials Removal workers, Asbestos Abatement Workers, Lead Abatement Workers, Environmental Compliance Inspectors</li> </ul> <p>Metropolitan Energy Center provided training for:</p> <p>a) unemployed or underemployed individuals seeking work</p>

			<p>in energy-related fields;</p> <p>b) incumbent workers seeking additional credentials to advance in their careers; and</p> <p>c) independent contractors or other businesses seeking additional credentials to expand 86 individuals will receive training in energy-related fields and of those seeking work, 70% will be placed in jobs related to their training. 30 businesses will be assisted through the initiative.</p> <p>This program augmented Metropolitan Energy Center's existing portfolio of workforce training in energy and environmental fields and develop significant new training capacities in response to emerging needs in the Kansas City metropolitan area.</p> <p>A spin-off partnership was formed with KC, KS Community College culminating in formation of a new business in the market called "ReClaim KC". ReClaim KC was formed to address storm damaged trees by collecting them and milling them into usable wood for wood workers.</p>
<p>Metropolitan Community College</p> <p>Kansas City, Missouri</p>	\$150,000	Workforce Development	<p>MCC trained about 35 individual contractors/laborers in abatement and deconstruction and offered small business development training to 12 new and small businesses. Each trainee went through an individual interview process with the project manager to create an individual development training plan.</p> <p>MCC implemented an On-the-Job Training program to place up to 32 residents trained in abatement and deconstruction into jobs with contractors for the City of Kansas City, Missouri East Patrol Division and Regional Crime Lab \$57 million development project on a 20-acre campus between 26th-27th Streets and Brooklyn-Prospect Avenues. Sixty six structures, mostly residential, were demolished and the City required employment, via Sec. 3, local companies who hired local residents to abate the properties and deconstruct using principles of materials remediation to reduce the amount of waste deposited in landfills.</p> <p>MCC delivered training in abatement and deconstruction including tools, supplies and texts for 35 participants and, in partnership, University of Missouri-KC Innovation Center delivered the FastTrac® NewVenture and Construction Business Management to a total of 12 new and existing businesses.</p> <p>MCC also provided On-the-job training funds to employers for</p>

			reimbursement of salary and new certified workers, with up to 32 new workers to be funded at 50% of salary for up to 16 weeks with a maximum of \$5,000 per worker.
Johnson County, Kansas  Community College	\$49,945	Hospitality Industry	JCCC provided green job training to students and helped to establish a green jobs pipeline into the KC Metro hospitality industry through the Sustainable Hospitality Internship program. The program integrated sustainable practices into KC Metro restaurant operations. The interns helped increase the building energy efficiency and water conservation practices of KC Metro restaurants.
University of Central Missouri	\$120,145	Real Estate Industry	<p>The University of Central Missouri provided two training programs that were a part of the National Energy Retrofit Institute program; Retrofit Brokers (RB) training and Residential Energy Client Service Coordinators (RECSC) training. The Retrofit Broker training focused on underemployed real estate professionals that are now increasing property owner awareness about energy efficiency. RECSC training targeted unemployed individuals who provide customer service for property owners wanting to explore energy efficiency.</p> <p>One-on-one energy and water efficiency and conservation workshops were conducted by graduates. Group workshops were conducted by graduates as well as NERI staff and partners.</p> <p>UCM trained approximately 40 Retrofit Brokers and 15 RECSC. Retrofit Brokers were equipped with the materials and supplies they need to conduct 400 individual property owner workshops.</p>
KMBC TV-9 Local ABC Affiliate	\$125,000	Home Energy Make-Over Contest	<p>Home owner won an online contest sponsored and operated by local television station KMBC TV-9 (ABC affiliate) in conjunction with the Metropolitan Energy Center. Pre- and post-improvements energy analysis and quality control inspections were donated by MEC. The work was completed and the value of the work – all of which was donated by private sector companies, and the expected impact, are as follows:</p> <ol style="list-style-type: none"> <li>1. Furnace and A/C replacement by cfm Distributors - Wholesale cost \$2,800 <ol style="list-style-type: none"> <li>a. New furnace - 95.5% AFUE (efficiency rating)</li> <li>b. New air conditioning – 16 SEER (efficiency rating)</li> <li>c. Installation materials and labor by Anthony Plumbing Heating and Cooling - \$2,800</li> </ol> </li> </ol>

			<ul style="list-style-type: none"><li>2. Air sealing package by Efficiency First Kansas City - \$599</li><li>3. Attic and rim joist insulation by Hayes Insulation Co. - \$1,386.45</li><li>4. Repairs and Painting by Platinum Painting, LLC - \$599</li><li>5. Energy analysis – pre-improvements and post-improvements testing by Metropolitan Energy Center - \$599</li></ul> <p>TOTAL COST OF MAKE-OVER IMPROVEMENTS - \$8,783.45 – 100% donated/leveraged funds</p> <p>Projected potential annual energy savings, per the energy analysis – 39.5% (Caveate: Projected annual energy savings can be substantially altered – plus or minus – by owner use of the building)</p>
--	--	--	--

Appendix 2

Leveraged Dollars - Projected and Realized


CATEGORY	PROJECTED RESOURCES for the GRANT PERIOD	PROJECTION FOR GRANT APPLICATION of \$50,000,000	ADJUSTED TO APPROVED GRANT of \$20,000,000	REALIZED DURING GRANT PERIOD
		(\$)	(\$)	(\$)
Financial Institutions	Mazuma Credit Union	30,000,000	12,000,000	0
	Community America Credit Union	90,000,000	9,000,000	0
	Neighborhood Housing Services	6,000,000	3,000,000	0
	Kansas City Credit Union	3,000,000	300,000	0
	Guadalupe Centers Federal Credit Union	100,000	100,000	0
	<b>TOTAL – FINANCIAL INSTITUTIONS</b>	<b>\$129,100,000</b>	<b>\$24,400,000</b>	<b>0</b>
Federal and State Energy Efficiency Initiatives	LIWAP	16,600,000	6,640,000	9,861,442
	KCPL/MGE HPwES Rebates	1,834,000	733,600	5,806,584
	Other Related Rebates	578,600	231,440	0
	Housing Authority of KC	2,338,000	1,169,000	0
	Missouri Appliance Rebates	1,000,000	400,000	Unknown
	Missouri School Loan Program	3,400,000	1,360,000	Unknown
	State Energy Center – HPwES	5,200,000	2,080,000	Unknown
	<b>TOTAL – EFFICIENCY INITIATIVES</b>	<b>\$30,950,600</b>	<b>\$12,614,040</b>	<b>\$15,668,026</b>
Green Impact Zone	KCP&L Smart Grid Project	48,100,000	48,100,000	9,620,000
	Funding by KCMO for Operations	1,500,000	1,500,000	1,500,000
	Climate Sustainability Center	50,000,000	50,000,000	0
	TIGER for Green Impact Zone	32,200,000	32,200,000	32,200,000
	NSP2 – Foreclosed Home Upgrades	17,500,000	7,000,000	0
	Other – See MARC Letter of Support	57,400,000	57,400,000	17,220,000

	<b>TOTAL – GREEN IMPACT ZONE</b>	<b>\$206,700,000</b>	<b>\$196,200,000</b>	<b>\$60,540,000</b>
Community Partner Resources	cfm Distributors and other In-kind	351,375	140,550	8,783
	OAI Brownfields Training	500,000	250,000	456,000
	Northland Neighborhoods	7,500	7,500	167,990
	Westside Housing Organization	1,500,000	150,000	941,031
	Neighborhood Housing Services	1,900,000	475,000	0
	True Vine CDC	7,500	750	750
	Blue Hills Community Services	800,000	800,000	1,320,841
	Other – Good and Services	950,750	380,300	268,500
	<b>TOTAL – COMMUNITY PARTNERS</b>	<b>\$6,017,125</b>	<b>2,204,100</b>	<b>3,163,895</b>
Related Neighborhood Investments	NSP	7,300,000	1,825,000	903,192
	CDBG	25,500,000	2,550,000	3,366,691
	Lead Abatement	2,998,508	299,851	0
	Brownfields	6,265,000	626,500	2,405,111
	Homeless Prevention (HPRRH)	3,628,139	362,814	357,743
	HOME	9,000,000	900,000	573,520
	<b>TOTAL – RELATED INVESTMENTS</b>	<b>\$54,691,647</b>	<b>6,564,165</b>	<b>7,606,257</b>
Leveraging Resources Added During Grant Period	MARC – Deconstruction Training			70,000
	Ivanhoe – Wells Fargo			65,000
	LISC – Land Acq/BHCS			425,000
	CDBG – Land Acq & Soft Costs			800,000
	Unified Govt – KCKS/Wyandotte			28,500
	HRES – Concert for the Climate			248,548
	Roeland Park, KS/Historic Green			38,000
	MEC – Training Grants			418,000
	MARC - Workforce Development			596,343
	East Patrol Division & Crime Lab			3,067,590
	Home and Business Owners			6,877,390
	<b>TOTAL ADDED</b>			<b>\$12,634,371</b>



<b>TOTAL LEVERAGED FUNDS</b>			
<b>POTENTIAL</b>	<b>\$427,459,372</b>	<b>\$243,221,305</b>	
<b>REALIZED</b>			<b>\$99,612,549</b>
<b>Leveraging Percentage</b>	855%	1210%	463.68%
<b>Leveraging Ratio</b>	<b>8.55 to 1.0</b>	<b>12.1 to 1.0</b>	<b>4.63 to 1.0</b>

### Appendix 3 Marketing and Outreach - Samples

  
816.531.SAVE

## financing **INCENTIVES**

EnergyWorks KC offers a variety of financial incentives to make achieving energy efficiency improvements affordable.

EnergyWorks KC incentives are available for energy efficiency building improvements that achieve at least 15 percent projected energy savings, based on a professional energy analysis.

Building owners must complete an energy analysis prior to selecting improvements and a post-improvements analysis to verify work has been completed properly.




The following EnergyWorks KC requirements must be met:

- The physical address of the property must be in Kansas City, Mo.
- Health and safety concerns must be corrected before energy efficiency measures can be applied.

**Neighborhood Housing Services**  
816.822.7703 ■ [www.nhsofkcmo.org](http://www.nhsofkcmo.org)

**KC Terminal Employees/Guadalupe Center Federal Credit Union**  
816.842.6473 ■ [www.guadalupecenters.org](http://www.guadalupecenters.org)

**Mazuma Credit Union**  
816.361.4194 ■ [www.mazuma.org](http://www.mazuma.org)



Appendix 3 (cont'd)

## Financing and Incentive Options

### REVOLVING LOAN FUND (RLF)

The RLF is available to building owners who choose to finance any or all of the energy efficiency improvements identified in their energy analysis and which contribute to achieving energy savings of at least 15%.

- Loans are available for building owners whose projected annual energy saving is at least fifteen percent (15%)
- Loan Maximum – None
- Interest rate – Target areas – 0%; Citywide – 3%
- Loan Term – 15 years
- If improvements have been paid by credit card – EWKC can refinance the debt
- Lien – Not applicable
- Credit score – 580 minimum
- Loan Origination Fees – \$165 (Can include in loan)
  - Application Fee – \$40 (includes \$25 credit report)
  - Origination Fee – \$75
  - Document Preparation Fee – \$50
- Debt-to-Income Ratio
  - Target Areas – Not applicable
  - Citywide – 45% maximum
- Loan-to-Value Ratio – Not applicable
- Real Estate Taxes – Must be current
- Alternative Credit – Recurring bills, must be current
  - Water, gas, electric, mobile phone, internet services, daycare or auto insurance

EWKC financing incentives may be combined with other available incentives such as local utility rebates.

### REBATES/GRANTS

Rebates may be used to defray costs of the energy efficiency analysis and/or the improvements necessary to achieve the targeted energy savings.

- **Residential** – Up to \$1,000 for projected minimum 15% energy savings; Up to an additional \$1,000 for 30% savings; Not to exceed real costs
- **Commercial** – Up to \$3,000 for projected minimum 15% energy savings; Up to additional \$3,000 for 30% savings; Not to exceed real costs
- **Multi-family** – Rebate is the same percentage as savings; Maximum at \$25,000 per complex
- Available only on completion of the improvements
- Rebates to building owners may be assigned to the analyst or improvements contractor

### INTEREST RATE BUY DOWN (IRBD)

The IRBD reduces the interest expense of the loan and is available to any EWKC customer financing any or all of the energy efficiency improvements identified in the energy analysis and which contribute to achieving targeted energy savings. Lender is the customer's choice.

NHS will provide the customer a lump sum payment to the lender, at disbursement, as follows:

#### Energy Savings

At Least	Interest Rate	Period
15%	0%	First 12 months
20%	0%	First 24 months
30%	0%	First 36 months
40%	0%	First 48 months
50%	0%	Life of Loan



For more information contact:  
Metropolitan Energy Center  
816.531.SAVE  
EnergyWorksKC.org



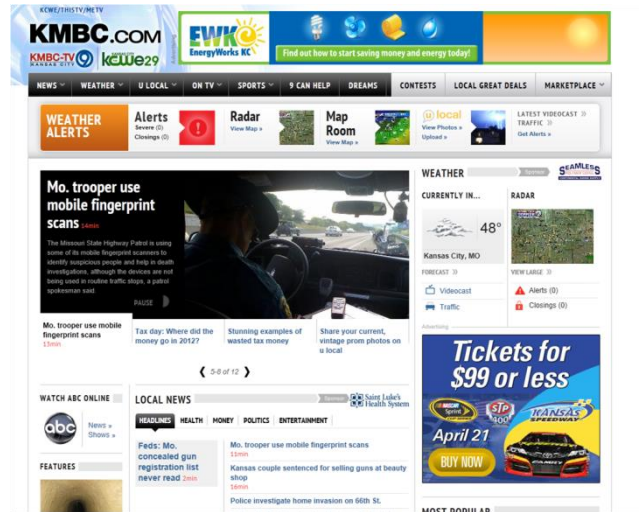
Appendix 3 (cont'd)

Sample Ads Developed  
Online Banner Ads



### Appendix 3 (cont'd)

#### Sample Online Banner Ads





### Appendix 3 (cont'd)

#### Sample Texting Campaign Energy Tips

1. Drink tap water. KCMO has some of the highest quality tap water in the US & costs 99% less than bottled water.
2. Install a low-flow showerhead & limit showers to 5 minutes. You'll save over 2,000 gallons of water a year.
3. Put a plastic water bottle full of water in the tank of your toilet. You'll use less water every time you flush & save on your water bill.
4. Irrigation accounts for 60% of our water usage. Limit watering to 2-3 times a week & only in the early morning hours.
5. Using cooler water and air-drying your clothes can save energy while doing your laundry.  
<http://energy.gov/search/site/Tips%20for%20doing%20laundry%20efficiently?gid=157>
6. Turning off [Incandescent lights](#) when they are not needed will keep a room cooler, an extra benefit in the summer.  
<http://energy.gov/energysaver/articles/when-turn-your-lights>
7. Washing dishes by hand several time a day can be more expensive than operating an energy-efficient dishwasher. <http://energy.gov/energysaver/articles/reduce-hot-water-use-energy-savings>
8. You can save as much as 10% a year on heating and cooling by simply turning your thermostat back 7°-10°F for 8 hours a day.  
<http://energy.gov/energysaver/articles/tips-programmable-thermostats>
9. Caulk and weatherstripping can help you reduce air leakage around your windows, and window coverings can help keep your home cool. <http://energy.gov/energysaver/articles/energy-efficient-windows>
10. **Avoid Heat Buildup** in your house on hot days by using window shades, avoiding oven use, and using natural ventilation when bathing.  
<http://energy.gov/public-services/homes/heating-cooling>
11. Replace incandescent bulbs with more efficient lamps, such as compact fluorescent lights (CFLs) and LEDs.  
<http://energy.gov/energysaver/articles/replacing-incandescent-lightbulbs-and-ballasts>
12. Use a ceiling fan can in hot weather, don't blast the air conditioner.  
<http://energy.gov/energysaver/articles/space-heating-and-cooling-products-and-services>
13. Don't drive aggressively, slower speeds lead to savings, fewer accidents and a less stressful commute for everyone.  
<http://energy.gov/energysaver/articles/tips-transportation>

Source: U.S. Department of Energy  
<http://energy.gov/energysaver/articles/10-resources-help-you-save-energy-now>

## Appendix 4

### Success Stories and Creative Uses of EECBG Funds

OPERATING AGENCY	SUCCESS STORIES
Metropolitan Energy Center (MEC)	Facilitated 4,326 energy efficiency analyses of homes, non-profits, churches, and small businesses resulting in improvements to the energy efficiency of 2,819 buildings. Approved SOPO included 2,000 buildings in the original grant period plus another 400 in the following year. Grant targets have been met and exceeded.
Mid-America Regional Council (MARC)	<ol style="list-style-type: none"> <li>1. Policy Development - Building on and expanding the Regional Energy Efficiency and Conservation Strategy (REECS) project implemented pursuant to the EECBG Formula Grant, resources were focused on addressing policy barriers to energy efficiency, education and outreach in the region, workforce development and identifying and making available lessons learned from the Green Impact Zone. MARC entered into a partnership with the Midwest Energy Efficiency Alliance (MEEA) and, in conjunction with 11 other Formula Grant cities and counties in the region, succeeded in achieving upgrades to the energy codes with the adoption of amended IECC 2012, by the cities of Kansas City, MO and Overland Park, KS, that covers and has an impact on approximately half the population of the region.</li> <li>2. Workforce Development – Green Jobs Pipeline - MARC’s efforts notably sought to link workforce development with other energy efficiency investments. Strong partnerships with the three area community colleges, a major university, and two key non-profits proved instrumental in creating and delivering workforce development and job training that exceeded initial goals and expectations. Subgrant awards to six high-impact green workforce training and education projects resulted in 336 individuals trained, 148 individuals placed in employment, and 129 businesses assisted in workforce efforts, incumbent worker training and business development training. The number of individuals trained exceeded initial projections by forty percent, the number of placed individuals reached 106% of target and the number of businesses assisted hit 226% of target.</li> </ol>
Blue Hills Community Services	Non-profit Community Development Corporation (CDC). Successfully renovated a vacant warehouse at 5008 Prospect into a multipurpose facility creating (1) a business incubator with office space for small businesses, with shared back office assistance and storage, (2) office space for Blue Hills Community Services itself, and (3) meeting space

	for surrounding neighborhoods. Leveraged \$1,320,841 from other sources. The building was renovated to LEED-Gold standards including a large garden area, a large water collection system and a charging station for plug-in electric vehicles. In operation, the building renovation serves as a highly visible, award-winning model node of redevelopment along the Prospect Corridor in Kansas City's impoverished East side.
Bridging The Gap (BTG)	BTG created and operated the WaterWorks KC program implemented recognizing the nexus between energy efficiency and water conservation. Reduction in water use and water waste in buildings reduced the amount of water that must be treated and pumped thereby saving energy at the municipal level as well as reducing water related costs borne by home owners. Provided rebates to 1,200 home owners and owners of multifamily developments to reduce the cost of purchase of high efficiency toilets to save water.
Bridging The Gap (BTG)	Utilized home owner and neighborhood donated labor in making energy efficiency improvements to 34 moderate income households. Achieved at least minimum program energy efficiency standards without professional contractors.
HEAL - MEC and The Clinton Foundation	The City of KCMO facilitated and made funds available in support of a partnership between the Clinton Foundation and the Metropolitan Energy Center to implement a pilot program concept developed by the Foundation. The program – Home Energy Affordability Loan (HEAL) - intimately involves employers in their employees' process of upgrading the energy efficiency of their homes. MEC and the City engaged in the initial outreach to employers. MEC provided pre and post upgrade energy analyses to participating employees, and NHS lent funds to the employees while each employer agreed create a payroll deduction process to repay the loans to NHS. Three area employers participated in the pilot – BNIM Architects and Planners, Posty Cards Printers, and the City of Independence, MO. The City of Independence maintains its own credit union for employees. While considered a success based on experience gained as part of the BBNP, this program is one of the base programs in the city's sustainability plans.
Metropolitan Energy Center and KMBC TV-9	In partnership with KMBC-TV9, local ABC Network affiliate, implemented a texting campaign providing prizes, up to a whole-house energy makeover, as part of community-wide energy conservation education program. Home owner won an online contest sponsored and operated by local television station KMBC TV-9 (ABC affiliate) in conjunction with the Metropolitan Energy Center. Pre- and post-improvements energy analysis and quality control inspections were donated by MEC. The work was completed and the value of the work – all of which was donated by private sector companies, and the expected impact, are as follows: <ol style="list-style-type: none"> <li>1. Furnace and A/C replacement by cfm Distributors - Wholesale cost \$2,800 <ol style="list-style-type: none"> <li>a. New furnace - 95.5% AFUE (efficiency rating)</li> </ol> </li> </ol>



	<p>b. New air conditioning – 16 SEER (efficiency rating)</p> <p>c. Installation materials and labor by Anthony Plumbing Heating and Cooling - \$2,800</p> <p>2. Air sealing package by Efficiency First Kansas City - \$599</p> <p>3. Attic and rim joist insulation by Hayes Insulation Co. - \$1,386.45</p> <p>4. Repairs and Painting by Platinum Painting, LLC - \$599</p> <p>5. Energy efficiency analysis – pre-improvements and post-improvements testing by Metropolitan Energy Center - \$599</p> <p>TOTAL COST OF MAKE-OVER IMPROVEMENTS - \$8,783.45 – 100% donated/leveraged funds</p> <p>Projected potential annual energy savings, per the energy analysis – 39.5% (Caveate: Projected annual energy savings can be substantially altered – plus or minus – by owner use of the building)</p>
Concert for the Climate	Heartland Renewable Energy Society ... Hosted by socially conscious environmental and conservation groups, and facilitated by the HRES, the Concert for the Climate event educated and informed attendees about the impact of global climate change offering alternative ideas and practical solutions. The event was a musically informative, interactive event with featured speakers. Bill McKibben, founder of 350.org. and Robert Kennedy, Jr.
Contractor Training	City of KCMO provided 2-day training for energy efficiency contractors in the metropolitan region. The City facilitated training by the Building Science Academy from Michigan which focused on improving contractor business models for sustainability. Over 50 contractors attended the 2-day training session.
Carbon Monoxide Detectors - Marketing -	City purchased Carbon Monoxide (CO) Detectors for use by contractors as (1) educational tool about the energy efficiency – healthy homes nexus, and (2) a give-away marketing tool with potential EnergyWorks KC customers. The CO detectors were plug-in with battery backup for easy installation and maintenance
KCMO	The City provided for appropriate assessment and removal of asbestos which inhibited deconstruction or energy efficiency upgrade of a building. Tremendous cost savings was realized by using qualified city staff to gather the material and city pre-bid contracts with fixed prices for assessments.
Metropolitan Energy Center	A spin-off partnership was formed with KC, KS Community College culminating in formation of a new business in the market called “ReClaim KC”. ReClaim KC was formed to address storm damaged trees by collecting them and milling them into usable lumber for wood workers.
Johnson County, Kansas Community College	JCCC provided green job training to students and helped to establish a green jobs pipeline into the KC Metro hospitality industry through the Sustainable Hospitality Internship program. The program integrated sustainable practices into KC Metro restaurant operations. The interns helped increase the building energy efficiency and water conservation practices of KC Metro restaurants.

University of Central Missouri	<p>The University of Central Missouri provided two training programs that were a part of the National Energy Retrofit Institute program; Retrofit Brokers (RB) training and Residential Energy Client Service Coordinators (RECSC) training. The Retrofit Broker training focused on underemployed real estate professionals that are now increasing property owner awareness about energy efficiency. RECSC training targeted unemployed individuals who provide customer service for property owners wanting to explore energy efficiency.</p> <p>One-on-one energy and water efficiency and conservation workshops were conducted by graduates. Group workshops were conducted by graduates as well as NERI staff and partners.</p> <p>UCM trained approximately 40 Retrofit Brokers and 15 RECSC. Retrofit Brokers were equipped with the materials and supplies they need to conduct 400 individual property owner workshops.</p>
Marketing	<p>Kansas City developed a broad marketing program that utilized almost every marketing mechanism possible including: traditional and social media, newspapers and magazines, electronic neighborhood newsletters, public transit placements, strategically placed billboards, radio and television spots and interviews – in English and Spanish, a wide range of handouts for events including yo-yos, Rubic’s cubes, cloth flying discs (*similar to frisbees), slinkies, reusable water bottles, pens and pencils, t-shirts, coloring books and crayons, and other items. All marketing pieces were color coordinated for branding along with a program logo. In addition, all marketing pieces were both made of recycled materials and were recyclable. Ultimately, our marketing program was submitted for two international awards and won awards in both categories.</p> <ol style="list-style-type: none"> <li>1. EWKC won a Platinum (First Place) MarCom Award from the Association of Marketing and Communications Professionals in the category of “Best Integrated Media Campaign.” Nearly 6,000 entries are annually submitted for the MarCom Awards, an international competition that recognizes outstanding achievement by marketing and communication professionals.</li> <li>2. EWKC also won a Bronze Award in the category of “Digital: Best Integrated Print and Web Program, B2C” from the Custom Content Council’s Pearl Awards, an annual competition in which more than 600 entrants worldwide compete. The Custom Content Council is a custom publishing industry that promotes the growth and vitality of the marketing discipline.</li> </ol>
City Energy Project	<p>Pursuant to a competitive application process, the City of KCMO applied to the Natural Resources Defense Council (NRDC) and the Institute for Market Transformation (IMT) to be selected as an initial. Implementation city to develop the energy efficiency market for owners and managers of large commercial and institutional buildings.</p>

	<p>The program is patterned after programs started by New York City, Chicago, San Francisco, and others. Kansas City was selected to operate the 3-year program along with the cities of: Atlanta, Boston, Chicago, Denver, Houston, Los Angeles, Orlando, Philadelphia, and Salt Lake City. While considered a success based on experience gained as part of the BBNP, this program is one of the base programs in the city's sustainability plans.</p>
Energy Data Accelerator	<p>While also considered a success based on experience gained as part of the BBNP, this program is one of the base programs in the city's sustainability plans. The City, in partnership with local electric utility company KCP&amp;L, submitted an application to be chosen to participate in the Department of Energy Data Accelerator Project. The EDA project is designed to work with commercial businesses and multifamily developments to better understand their own energy use data and, ultimately, to benchmark their facilities. The EDA project will be operated in conjunction with the CEP</p>

## Appendix 5

### KC Star Article - Workforce Development Johnson County Community College

FYI-

Sent from my iPhone

Begin forwarded message:

**From:** Ryan Wing <[rwing@jccc.edu](mailto:rwing@jccc.edu)>  
**Date:** June 24, 2014 at 5:40:47 PM EDT  
**To:** Victoria Ogier <[vogier@marc.org](mailto:vogier@marc.org)>  
**Subject:** Green Jobs in the KC Star

Hi Victoria:

The KC Star article featuring our Sustainable Hospitality Internship Program was published today. The reporter did a really great job of comprehensively covering a very complex topic. It also does a great job of showing how EnergyWorksKC helped start an important and unique program.

#### **Kansas City restaurants work to become more green**

<http://www.kansascity.com/news/local/community/joco-913/article609033.html>

Ryan Wing

Senior Sustainability Analyst  
Johnson County Community College  
Center for Sustainability  
(913) 469-8500 x4929

---

The information contained in this e-mail and any attachments thereto ("e-mail") is sent by the Johnson County Community College ("JCCC") and is intended to be confidential and for the use of only the individual or entity named above. The information may be protected by federal and state privacy and disclosures acts or other legal rules. If the reader of this message is not the intended recipient, you are notified that retention, dissemination, distribution or copying of this e-mail is strictly prohibited. If you have received this e-mail in error please immediately notify JCCC by email reply and immediately and permanently delete this e-mail message and any attachments thereto. Thank you.

## **Kansas City Restaurants Work to Become More Green**

By Steve Everly - The Kansas City Star

06/24/2014 1:57 PM 06/24/2014 2:25 PM

Read more here: <http://www.kansascity.com/news/local/community/joco-913/article609033.html#storylink=cpy>

Yvette Hiran is a single mother of three, and with a budding career as a chef, she doesn't have much spare time.

But recently when preparing a fish dinner for her family, she took the time to chop off the fish's head and turn it into a tasty sauce.

"I don't think Kansas is ready for that," she said.

She was born and raised in the Philippines, where she learned to use everything from snout to tail. Her family got 80 percent of its food at a farmers market supporting local producers. When she enrolled in Johnson County Community College's culinary program, she jumped at the chance to be a "sustainability intern" at EBT restaurant, helping the business find ways to become more green.

The internship and her time as a cook at other restaurants in the Kansas City area convinced her that restaurants have plenty of potential to reduce energy costs and food waste.

"It has a future and it can get better," she said.

Hiran is part of a budding movement in Kansas City to turn the spotlight of sustainability onto the restaurant industry.

Most restaurants are pretty piggish when it comes to saving energy and reducing waste. No business in a commercial building uses more energy per square foot than a restaurant. And restaurants dump billions of pounds of leftovers and food scraps into the country's landfills each year.

Johnson County Community College, in what is thought to be a first for a culinary program in the U.S., has been fielding interns since 2012 to help local restaurants become more sustainable.

The interns have had successes and stumbles. Restaurants — with tight budgets and a business culture that naturally puts the emphasis on serving meals — have often put sustainability on the back burner.

“We can’t solve this problem on our own, but our students and this program can be a valuable tool,” said Ryan Wing, senior analyst for the college’s sustainability center.

Johnson County Community College, known for training chefs and restaurant managers, has been working to be less wasteful itself. Its new building for the culinary program recently earned a silver LEED certification for using less energy and water. The college collects food waste from its dining services and a food court and turns it into compost to use as fertilizer or soil conditioner.

The college’s sustainability internship program got its start two years ago after the Mid-America Regional Council provided a \$50,000 green-jobs grant to the college. The school paid at least one intern \$3,600 a semester to work at a restaurant and offer ways the establishment could cut down on waste and be more energy efficient.

Then the college used green-jobs grant money to give restaurants or other food-service establishments up to \$2,500 each to make improvements that the intern recommended. For example, an intern at Christopher Elbow Artisan Chocolates in Kansas City noticed that its building, formerly a tire shop, was connected to a drafty garage that contributed to high utility bills, especially in the summer. Temperatures have to be tightly controlled to ensure the quality of the chocolate.

The intern recommended and a grant helped pay for insulation and other weather proofing. The business also stepped up efforts to recycle, including glass bottles and cardboard boxes, and found companies to take it away.

“They’re making it easy to not throw things away,” said Ethan Taylor, a manager at the chocolate business.

The interns, who have so far worked at nine restaurants, have found problems such as loose doors on walk-in coolers and faucets that constantly leak. In one restaurant, the oven was never turned off because a malfunctioning pilot light kept it from being easily re-lit. The program got that oven fixed.

Hirang’s internship at the EBT restaurant and working at other area restaurants has her looking for ways to cut waste. Her successes include stopping the use of styrofoam cups and containers and getting sensors installed on bathroom lights so they are only on when occupied.

At EBT, some things were fairly easy to accomplish, such as recycling glass bottles through the Ripple program started by Boulevard Brewing.

“Our industry is becoming more aware, especially among younger chefs,” she said.

The most vexing problem in the food industry continues to be food waste. In the Kansas City area, an estimated 171,000 tons of food end up in landfills each year from restaurants, households and grocery stores.

Most restaurants still dump partially eaten meals and scraps from preparing food into the trash, but finding a solution has moved center stage in the internship program.

“It’s going to be strictly about food waste,” said Donovan Stabler, an intern in the program. The money from the green-jobs grant has been spent, but George and Patricia Semb, big supporters of the college, agreed to fund the interns’ pay in the sustainability program.

“We thought this was a great idea,” said George Semb.

Restaurants have long been ripe for sustainability because of the huge potential savings.

“There’s more energy used by restaurant appliances than by all the computers in commercial buildings in the United States,” said Sameer Kwatra, a senior analyst for the American Council for an Energy-Efficient Economy.

They use 5 to 7 times more energy per square foot than an office building, according to the U.S. Department of Energy. About 25 percent of a restaurant’s energy bill goes to food preparation and slightly less for heating and cooling the premises. Another 10 percent of a restaurant’s energy usage goes to lighting and 15 percent to refrigerating food.

A commercial deep-fat fryer in a restaurant uses 18,000 kilowatt hours of electricity over a year. That’s 60 percent more than the power used by an average residential home in a year. More efficient commercial appliances are available and over the long run are economical. But they cost more, and cash-strapped restaurants, especially if they’re small businesses, are inclined to choose the cheaper but less efficient stoves, fryers and other appliances, said Kwatra.

The amount of food waste from restaurants is also large, although putting a number on it is difficult. The U.S. Department of Agriculture claims that 30 percent to 40 percent of the country’s food is wasted, with the losses happening all along the food chain from harvest to consumer, including in households and restaurants.

At least 10 percent of the country’s wasted food is thought to come from restaurants. LeanPath, a technology and software company that allows restaurants to track food loss, says that 4 percent to 10 percent of the loss happens when preparing food in the kitchen. And in the dining room, only an estimated half of uneaten meals are taken home.

“The good news is, it doesn’t have to be this way,” said Dana Gunders, a project scientist for the Natural Resources Defense Council. “We can do much better.”

One of the sustainability program's goals is to help restaurants become certified by the Green Restaurants Association, which was founded in 1990 to offer help to make restaurants more sustainable and give consumers some choices in dining at green restaurants. Restaurants are charged \$50 a month to belong, which includes assistance in meeting the group's standards.

"We are the experts in what we do," said Michael Oshman, founder and CEO of the Green Restaurants Association, which is based in Boston.

The association has different levels of certification based on a point system, including for the use of energy-efficient appliances and LED lights, along with recycling food waste when available. Styrofoam cups and containers, which don't decompose, are banned, and environmental friendly cleaners are recommended. Using more locally raised food plays a role. So far, most of the green certified restaurants are in cities like New York, Boston and Chicago. But Sweet Tomatoes, a national chain of soup and salad restaurants, certified all their restaurants, including one in Kansas City and another in Overland Park.

Oshman said he is also seeing a generational shift in the restaurant business, with younger chefs and employees especially interested in sustainability.

His association is eager to qualify more restaurants in the Kansas City area. It recently did that when Rockhurst High School's cafeteria earned the certification.

Flik Independent School Dining provides the school's meals. Adam Horner, its director of dining services, was manager of EBT when Hiran was an intern at the restaurant, "which gave me a leg up" when getting the high school's kitchen and dining hall certified. The cafeteria is essentially trash-free.

"There are no garbage cans because there's no need for them," he said.

Energy-efficient appliances are used as well as the school's advanced system, which uses an atomic clock, to manage heating and cooling. There are no plastic utensils. The napkins are biodegradable so they decompose quickly and, combined with food waste, are turned into compost at the high school.

Horner said the certification was worth it but was a lot of work, with proof required for each step. The process took about 90 days.

"I think it makes sense but it was a very involved process," he said.



Danny Huffman is dressed in his chef uniform — a white hat and jacket — when he lends a hand at a food pulper. He tosses leftover pieces of apples, bananas and chips in a stainless steel trough, which has water coursing through it. The food flows into an auger and is ground up and sent to a chamber that squeezes out the moisture and dumps the waste into a biodegradable bag.

The whole process makes it more manageable to deal with large amounts of food leftovers and scraps, which are sent to a company that turns it into compost. “It’s great,” he said.

Huffman works for Aramark, which operates two cafeterias at Sprint’s corporate headquarters in Overland Park.

Sprint recently won an Environmental Protection Agency national award for recycling 54 tons of food waste in a year that would have gone to a landfill.

The food waste goes to Missouri Organic, a Kansas City-based company that takes waste from several corporate cafeterias and a handful of restaurants and turns it into compost at a facility near Liberty.

“They do a wonderful job,” said Stabler, Johnson County Community College’s current sustainability intern.

A family business, Missouri Organic got its start in 1992 when landfills stopped taking yard waste and the company started collecting tree limbs and brush to sell as firewood. Missouri Organic also took other yard waste and a few years ago began accepting food waste from grocery stores, including produce that had passed its sell date.

The company combines yard and food waste, turns it into compost, and then sells it under its Nature Wise brand to gardeners and others.

It later began taking food waste from corporate cafeterias and now has a couple of restaurants that send it their waste. Last year, it prevented 16,000 tons of food waste from going to the landfill.

But getting more restaurants to participate has been difficult.

“I think it will be a lingering issue,” said Kevin Anderson, vice president of the company and one of the sons of the person who started it.

His company’s experience is that the bottom line matters for 90 percent of those who recycle food. They avoid the cost of taking the waste to the landfill, but Missouri Organic also has fees to pick it up or take the waste at a site near Liberty.

Corporate cafeterias and grocery stores, for example, have the volume of waste to make the economics work. But individual restaurants, not so much, with just a handful sending food waste to the program, said Anderson.

Convincing restaurants to participate has been a harder sell.

But Trezo Mare, a restaurant in the Briarcliff Village shopping center in Kansas City, North, has been doing it for three years and is convinced it makes environmental and economic sense. The restaurant has reduced by 80 percent the waste it once sent to the landfill. The food scraps and leftovers are picked up three times a week by Missouri Organic, and other items such as glass bottles and cardboard containers are also recycled. Used cooking oil is sent in 100-gallon batches to a company that turns it into biodiesel.

It uses biodegradable corn-starch containers for takeout orders instead of styrofoam.

“It’s part of what we are at Trezo Mare,” said Robert Padilla, the restaurant’s executive chef.

Missouri Organic approached the restaurant three years ago about sending the company its food waste. The restaurant is still at it, with employees who are trained to throw food and other biodegradable waste into containers that are dumped into one of three 100-gallon bins to be picked up by Missouri Organic.

There are costs, including the \$380 monthly charge to pick up the food waste and more expensive biodegradable trash bags that are used to collect the food waste. But for Trezo Mare, those costs balance out when compared to the price it once paid to send waste to the landfill.

“If it works for us, it will work for anybody,” said Padilla.

Read more here: <http://www.kansascity.com/news/local/community/joco-913/article609033.html#storylink=cpy>

## Appendix 6

### Greenability Magazine Article November, 2011

EnergyWorks KC promotes eco-sense and dollar savings

By Mary Bush - November, 2011 – Greenability Magazine

Kansas City resident Linda Hyme is looking to the new EnergyWorks KC program for help in making her 20-year-old home in the Washington Wheatley neighborhood more energy efficient.

EnergyWorks KC (EWKC) is an innovative, federally funded grant program designed to bring new energy and financial savings to both home and building owners in Kansas City. The project is funded by a \$20-million U.S. Department of Energy grant awarded to the City of Kansas City, MO. The city was one of 25 selected from 175 applicants to receive the funding through the American Recovery and Reinvestment Act of 2009.

To accomplish its goals, the city is partnering with the Metropolitan Energy Center (MEC), a non-profit organization that promotes energy efficiency in Kansas and Missouri, and the Mid-America Regional Council (MARC), a non-profit planning organization for the bi-state Kansas City region. Kansas City Power & Light (KCP&L) and Missouri Gas Energy (MGE) are also participating in the project.

The program incentives are available to **most** Kansas City, MO residents. The grant is targeting some **neighborhood areas** with especially high needs, including the Central Industrial District, Eastwood Hills, Ruskin, Washington Wheatley, Westside, Winnwood-Sunnybrook and the Green Impact Zone, a 150-block area in the city's urban core that has experienced abandonment and economic decline.

For Linda Hyrne and other homeowners, the grant helps provide information and access to energy auditors to identify all of the areas where a house is leaking energy and costing money. Property owners can expect to pay an average of \$500 for an energy audit. In most cases, these costs can be reimbursed through utility rebates. Under the program, Hyrne had a certified energy audit that took about four hours and included a property inspection and a pressurized blower-door test that quantified air leakage. She said the audit uncovered both big and small problems.

"The largest problems were with the insulation in the attic and my heating and air conditioning system which isn't running in an energy-efficient manner," said Hyrne. "But there were a variety of

smaller problems such as putting insulation behind the socket covers to eliminate outside air coming in. The analysts gave me a little kit that I could use to take care of that.”

Hyrne learned about EWKC’s energy analysis program through her neighborhood association. Rebates up to \$1,000 on qualified improvements and a no-interest loan option will help her save money on the front-end, and then after improvements, she’ll save on utility costs for as long as she owns her home.

EnergyWorks KC has several important goals, starting with saving energy and reducing greenhouse emissions, according to co-directors Jerry Shechter, sustainability coordinator for the city’s Office of Environmental Quality, and Bob Housh, MEC executive director.

“Most buildings are fair game for our program,” said Shechter. “Residential and industrial properties, churches, small commercial buildings – we want them all to realize the benefits and receive the savings both in energy and real dollars that are available.”

MEC provides a ‘help line’ for customers to learn about rebates, tax credits and other financing incentives. Additionally, the customer support staff helps individuals and businesses connect with certified energy efficiency analysts to learn about immediate upgrades that have the greatest energy savings impact and financial payback. There are no income restrictions and owners of existing commercial, industrial, residential and institutional buildings are eligible to participate. Though EWKC’s program is for Kansas City, MO residents, MEC’s customer service representatives are knowledgeable about energy saving programs that apply to all metro residents, including those living in Kansas.

Another major goal of the EWKC is workforce development, starting with MEC hiring the program staff from targeted neighborhoods. MARC is **also** providing job training and development for “green” jobs and careers as well as an area-wide education program promoting the advantages of energy efficiency including local resources.

Additionally, the program will **work with** MARC and the city in a joint effort to help defray costs of deconstructing dangerous buildings that include abating hazardous materials such as asbestos. Many times, these buildings are demolished with large machines and construction debris is taken to the landfill. However, MARC is providing deconstruction training to contractors and unemployed neighborhood residents, **EWKC will provide the cost of deconstruction projects in excess of standard demolition costs.** Trainees learn how to salvage materials such as sinks, doors, windows, hardwood floors and more so the materials are diverted from landfills and used elsewhere or taken to resale

organizations such as Habitat for Humanity's ReStore. Trainees also receive Occupational Safety and Health Administration (OSHA) training, which makes them more valuable in the job market.

"They are learning a skill – one which is badly needed as more buildings come down," said Shechter.

Those skills are being put to good use in EWKC's partnership with Blue Hills Community Services as Blue Hills works to renovate a vacant building located in the city's Green Impact Zone at 50<sup>th</sup> and Prospect Avenue. The building will be used as a business incubator and office space as well as a neighborhood and job-training center.

Finally, the EWKC is charged with encouraging individuals on both the supply and demand side to view energy efficiency as a valid first choice in home or business improvement.

"We want everyone who has anything to do with real estate to understand the financial efficiencies of energy savings," said Housh. "Whether it's the home or building owner, real estate agent, appraiser, bank loan official, all can play a part in transforming Kansas City's energy market."

In October, Kansas City Mayor Sly James and City Manager Troy Schulte announced several new financing initiatives to EWKC's program to do just that. They include:

- Rebates for consumers who make energy-efficient improvements that have a 15 percent or greater projected energy savings. These rebates are designed to extend and enhance existing rebates available through KCP&L and MGE's Home Performance with the Energy Star Program, which **currently** can provide up to \$1,200 rebates for Missouri customers. **EWKC incentives can add to those rebates up to \$1,000 to qualifying homeowners and \$3,000 for small commercial business owners.**

- Incentives for lenders to support building and homeowners who apply for an energy-efficiency loan.

- Low- or no-interest rate incentive for energy-efficiency loan customers.

- 'Buy down' interest rate incentive for customers who **have to secure** a loan for energy-efficiency projects. This program potentially allows those customers to secure a no-interest loan for one year.

**EWKC, along with** the city's Water Services Department are **also** funding efforts to promote water conservation and efficient use of the city's resources. Since about one third of the city's electric bill is related to customer use (pumping and waste treatment), EWKC is working with the water department and Bridging the Gap to make conservation measures such as low-flow aerators, high-

efficiency showerheads and toilets, installation of rain barrels and rain gardens, downspout disconnections and more, available to the program's participants. This also represents a workforce development opportunity in targeted neighborhood areas.

Using the incentives and information EWKC offers, the program has targeted 1,600 residential and 400 commercial and other building types to reduce energy use by at least 15-percent. Housh says EWKC's newly announced incentives and its goals dovetail perfectly with the work MEC has been doing since it began 28 years ago.

"We want to appeal to those who wish to save energy and money by providing real financing incentives to help them do that," said Housh. "Our hope is this will encourage lots of new demand for energy efficiency in homes and businesses for years to come, and give this industry a real boost while this opportunity is here."

(Sidebar)

Energy rebates, incentives and resources

The Metropolitan Energy Center

816-531-7283

[www.EnergyWorksKC.org](http://www.EnergyWorksKC.org)

Customer representatives are available Monday through Friday from 8:30 a.m. to 5 p.m. with information about rebates (up to \$1,000), tax credits and other financing incentives. Get a list of certified efficiency auditors.

Home Performance with Energy Star Program

[www.hpwes.net](http://www.hpwes.net).

The City of Kansas City, MO, KCP&L and MGE customers can qualify for up to \$1,200 in rebate credits if guidelines are met.

Cool Homes & Energy Sense

[www.kcplsave.com](http://www.kcplsave.com)

KCP&L also offers qualifying Kansas City, MO customers rebates up to \$1,250 toward the purchase of a new energy-efficient air conditioner or heat pump. Get a list of participating dealers.

EnergyWorks KC

816-513-3401

[www.kcmo.org/EWKC](http://www.kcmo.org/EWKC)

Metropolitan Energy Center

816-531-7283

[www.EnergyWorksKC.org](http://www.EnergyWorksKC.org)

Mid-America Regional Council (MARC)

816-474-4240

[www.marc.org](http://www.marc.org)

Green Impact Zone

816-936-8803

[www.greenimpactzone.org](http://www.greenimpactzone.org)

Blue Hills Community Services

816-333-7870

[www.bhcsmo.org](http://www.bhcsmo.org)

Bridging the Gap

816-561-1087

[www.bridgingthegap.org](http://www.bridgingthegap.org)

Habitat ReStore

816-924-1096

[www.restorekc.org](http://www.restorekc.org)

Property Assessed Clean Energy (PACE)

[www.pacenow.org](http://www.pacenow.org)

## Appendix 7

### Metropolitan Energy Center ReClaim KC



---

Metropolitan Energy Center's **RECLAIM KC** initiative presents:

# **FREE** Reclaimed Lumber Processing Training

---

- What:** Learn how to turn salvaged wood into valuable building and furniture products. In this day and a half workshop, we will learn the tools, equipment, facilities and the techniques needed to create value while reducing waste by reclaiming Kansas City's old growth urban lumber and other valuable salvaged wood products.
- When:** Thursday, July 25, 8 am to 4 pm  
Friday, July 26, 8 am to noon.
- Where:** Location TBD. We will announce the location no later than Monday, July 22.
- Who:** To register for the training, please RSVP to Brennan Crawford at [brennan.crawford@gmail.com](mailto:brennan.crawford@gmail.com) or Warren Adams-Leavitt at [warren@kcenergy.org](mailto:warren@kcenergy.org). You can also RSVP by phone- call Brennan Crawford at 816-237-0164.
- 



*Acknowledgment:* "This material is based upon work supported, in whole or in part, by the Department of Energy - Office of Energy Efficiency and Renewable Energy under Grant Award Number DE-EE0003564 from the Energy Efficiency and Conservation Block Grant Program made available pursuant to the American Recovery and Reinvestment Act (RECOVERY ACT) of 2009."



Appendix 7 (cont'd)



## Appendix 8

### Home Energy Affordability Loan



HOME ENERGY AFFORDABILITY LOAN



HEAL is a program of the William J. Clinton Foundation. Find out more at [www.clintonfoundation.org](http://www.clintonfoundation.org)

## Appendix 9

### Miscellaneous Program Photos

Blue Hills Small Business Incubator





## Appendix 9 (cont'd)

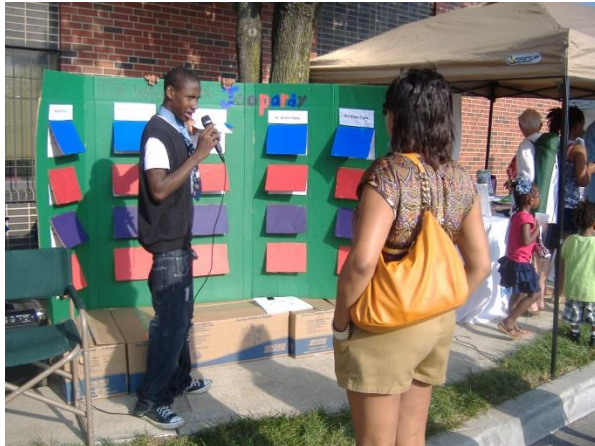
**Rain Barrel Installation**



**Rain Gardens**



**High School Students Teach Water Conservation**



**Water Efficient Toilets**



## Appendix 9 (cont'd)

### Deconstruction Classes





Appendix 9 (cont'd)

"Energy Quest" Children's Game



Appendix 9 (cont'd)

Kansas City Kansas Community College  
Construction Green Up Training





**Appendix 9 (cont'd)**

University of Central Missouri  
Real Estate Brokers and Agents





Facebook

DE-EE-0003564



Wall

Hidden Posts

Info

Insights

Photos

EDIT

33

like this

1

talking about this

Likes

Mid-America Regional Council

Home Energy Retrofit

Habitat for Humanity ReStore

University of Central Missouri

## National Energy Retrofit Institute

Education · Lees Summit, Missouri · [Edit Info](#)

Wall

National Energy Retrofit... · Everyone (Most Recent) ▾

Share: [Status](#) [Photo](#) [Link](#) [Video](#) [Question](#)

What's on your mind?



**National Energy Retrofit Institute**

UCM's National Energy Retrofit Institute was awarded training scholarships for two certificate programs; Retrofit Brokers (RB) and Residential Energy Client Service Coordinators (RECSC). The Retrofit Broker training will focus on underemployed real estate professionals that will provide direct property owner awareness. RECSC training will target unemployed individuals who can provide customer service for property owners wanting to explore energy efficiency. To learn more contact Scott Boyce, [boyce@ucmo.edu](mailto:boyce@ucmo.edu) or Laurel Hogue, [lhogue@ucmo.edu](mailto:lhogue@ucmo.edu) or call 660-543-4672.



**Six Greater Kansas City Area Organizations to Provide Green Jobs Training - Kansas City, Missouri**

Ne

[www.infozine.com](http://www.infozine.com)

Training in Energy Efficiency, Water Conservation and Deconstruction

15 People Reached · 2 People Talking About This

[Unlike](#) · [Comment](#) · [Share](#) · February 9 at 11:07am

You and 2 others like this.

Write a comment...



**David Nelson**

This is the keys to the Bank

Like · Comment · August 16, 2011 at 2:20pm · [Public](#)

Khal Miller likes this.

Write a comment...

RECENT ACTIVITY

530 | Page

**Appendix 9 (cont'd)**

Westside Housing Organization  
Historic Fire Station – Window Replacement



**Appendix 9 (cont'd)**

**Kansas Interfaith Power & Light**





**Appendix 9 (cont'd)**

Marketing - Billboards



**Appendix 9 (cont'd)**

Commercial Audit



Residential Combustion Test

